Investigação

XVII Encontro de Iniciação Científica da UNIFRAN

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Data: 29 e 30 de agosto de 2024
Horário: 29/08 – 14h às 21h – 30/08 – 8h às 12h
Local: Teatro Central da Universidade de Franca

Objetivos do Evento:
Proporcionar a interação dos estudantes de Iniciação Científica entre os diferentes campos científicos, por meio de apresentações, discussões, trocas de experiências e ampliação do conhecimento dentro da Instituição.

Homepage:
https://www.unifran.edu.br/pesquisa/iniciacao-cientifica-pibic-e-pibid/xvii-encontro-de-iniciacao-cientifica-da-unifran-2024/

ISSN 2177-4080

COMISSÃO ORGANIZADORA

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Apoio:

Universidade de Franca (UNIFRAN)

Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

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PROGRAMAÇÃO XVII ENCONTRO DE INICIAÇÃO CIENTÍFICA DA UNIFRAN

Dia 29 de agosto de 2024:

10:00 – 12:00h: Reunião com o comitê externo de avaliadores do CNPq:

(Exclusivo para os membros da Comissão de Bolsas de Iniciação Científica da UNIFRAN)

12:00 – 13:30h – Intervalo para almoço

14:00h – Cerimônia de abertura oficial

Profa. Dra. Kátia Jorge Ciuffi (Reitora – UNIFRAN)

Prof. Dr. Élcio Rivelino Rodrigues (Pró-reitor de Graduação)

Profa. Dra. Luciana Carmona Garcia (Presidente do Evento – PPG Liguística/UNIFRAN)

14:15h – Palestra de abertura:

"Pesquisa científica, internacionalização e sociedade: balanço e desafios de um mundo em movimento" Palestrante: Profa. Dra. Alessandra del Ré (Faculdade de Ciências e Letras – Universidade Estadual Paulista, Araraquara – SP).

15:30 – 16:00h – Coffee break

16:00 –18:30 Apresentação de trabalhos dos bolsistas de iniciação científica PIBIC-CNPq, PIBIC-EM e PIBIC-Institucional

19:00 – "A Iniciação Científica e a pós-graduação na Universidade de Franca"

Prof. Dr. Rodrigo Cassio Sola Veneziani

Dia 18 de agosto de 2023:

Apresentação oral de trabalhos iniciação científica bolsistas CNPq, Cruzeiro do Sul e PIBIC- EM.

11:00- 12:00 – Encerramento oficial

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XVII Encontro de Iniciação Científica da UNIFRAN

Anais do XVII Encontro de Iniciação Científica da Unifran

UNIFRAN
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EVALUATION OF THE TOXICOGENETIC POTENTIAL OF VISCERAL LEISHMANIASIS IN NATURALLY INFECTED DOGS AND SALIVARY SAMPLES FOR DEFINITIVE DISEASE DIAGNOSIS

Carolaine Oliveira Alvarenga[1]*, Ricardo Andrade Furtado[1], Rafael Paranhos de Mendonça[1], Lucas de Freitas Pereira[1], Isadora Pezati Sabino[1], Simone Bonattini Martinez[2], Brenda Faria Santos Gomes Parreira[2], Fernanda Gosuen Gonçalves Dias[1].

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Purpose: Given the epidemiological and public health significance of the visceral leishmaniasis, this study aimed to investigate whether salivary samples from naturally infected dogs could serve as a diagnostic; additionally, analyzed the potential toxicogenetic effects of the disease. **Methods:** Ten dogs from Rifaina (SP) and attended at the Veterinary Hospital of the University of Franca, were included that exhibited clinical signs suggestive of visceral leishmaniasis, with five of them confirmed through serological and parasitological examinations. Salivary samples were collected from the five seropositive and stained with hematoxylin-eosin for subsequent analysis of amastigote forms of the protozoan using bright-field microscopy. Furthermore, bone marrow samples were collected from the five seropositive and compared with those from the five seronegative to investigate the toxicogenetic potential of the disease through the micronucleus test. To assess possible genotoxicity, each slide made from bone marrow was analyzed for 4000 immature erythrocytes (IE) and those containing micronuclei (MN) were identified (IE-MN). Cytotoxicity was determined by analyzing 2000 erythrocytes/dog, and subsequently calculating the ratio of IE/IE+NCE (normochromatic erythrocytes). **Results:** The protozoan was not detected in any of the salivary samples. The mean frequency of IE-MN in seropositive dogs was statistically higher compared to seronegative ($p<0.0001$), indicating the genotoxicity of the disease. In two of the five seropositive, a decrease in erythrocyte production suggested cytotoxicity of the disease. **Conclusion:** The simple saliva analysis does not detect amastigote of the protozoan and should not replace established diagnostic methods and the micronucleus test suggested the genotoxicity and cytotoxicity of the disease.

Keywords: *Leishmania sp.*, protozoan, micronucleus test, zoonosis.

Approval CEUA: 2420160323

Acknowledgments: University of Franca, CAPES (finance code 001) and CNPq.

COMPARISON BETWEEN PERMANENT DENTITION MAXILLARY AND MANDIBULAR OF MAN AND THE DOMESTIC ANIMALS

Daniela Ramos de Souza[1]*, Adonis Ricardo Oliveira Faleiros[1], Vinícius Thomaz da Silva Almeida[2], Carolaine Oliveira Alvarenga[2], Marcela Aldrovani Rodrigues[2], Lucas de Freitas Pereira[2], Tais Harumi de Castro Sasahara[3], Luis Gustavo Gosuen Gonçalves Dias[4], Fernanda Gosuen Gonçalves Dias[2].

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Purpose: Comparative anatomy is the science that explores morphological differences between species. Among the structures that make up the axial skeleton of individuals, teeth stand out. Given the relevance of permanent dentition, the objective of the present study was to compare such elements in humans and domestic animals (dogs, horses and cattle) and, nevertheless, highlight the structural similarities in these different species in terms of quantities, functions and formats. **Methods:** Skeletons and anatomical pieces from the Human and Veterinary Anatomy Laboratory of the University of Franca were used, as well as anatomy books renowned in this area of specialty and scientific articles. **Results:** In terms of quantity, humans have 32 permanent dental elements, a count comparable to that of cattle, while dogs exhibit 42 and horses range between 34 to 38, each consisting of crown, neck, and root components. Cattle do not have incisors and maxillary canines and mares may not have canine teeth. In the different species analyzed, the dental elements demonstrated differences in terms of size, shape and quantity of roots. In all species studied, the definitive dental elements are responsible for the seizure, tearing and crushing of food. Furthermore, in some animal species they are used for self-defense, and, in humans, they directly influence facial aesthetics and speech. **Conclusion:** Based on the findings, it is evident that the anatomical and morphological characteristics of dental structures are intricately intertwined with the functional roles and dietary preferences of the various species under investigation.

Keywords: comparative anatomy, permanent dentition, food crushing.

Acknowledgments: University of Franca and CAPES (finance code 001).

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EFFICACY OF COLLAGEN I HYDROGEL IN THE TREATMENT OF PRESSURE ULCERS IN AN ANIMAL MODEL

Antônio Augusto Borges Sales[1]*, Jhuan Luiz Silva[1], Eveline Maria Mello[1], Thaylla Maria Ferreira[1], Fernanda Gosuen Gonçalves Dias[1], Marcela Aldrovani Rodrigues[1].

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Purpose: Pressure ulcers are chronic injuries resulting from ischemia and reperfusion, characterized by inflammation and exacerbated oxidative stress. Innovative approaches are required for their management, with the selection of dressings being crucial for successful treatment. This study aimed to evaluate the effects of a non-commercial, sustainable collagen I hydrogel, derived from discarded tendons from slaughterhouses, on the repair of pressure ulcers in an animal model. **Methods:** Twenty-two Swiss mice were used, divided into two groups: untreated and treated with collagen I hydrogel. Pressure ulcers were experimentally induced on the dorsal skin of the mice through three repetitive cycles of ischemia and reperfusion. After ulcer induction, the wounds were monitored for 14 days to assess size reduction. Additionally, the epidermal re-epithelialization area was evaluated histopathologically, and nitrite levels were quantified. Differences were significant when $P < 0.05$. **Results:** In the untreated group, the average wound size significantly decreased from day 0 to day 10 ($P < 0.05$) but then plateaued ($P > 0.05$). The treated group showed continuous improvement, with a significant reduction ($P < 0.05$) in wound size from day 0 to day 14. No significant difference in re-epithelialization area was observed between the groups ($P > 0.05$). Nitrite levels were lower in the treated group ($P < 0.05$). **Conclusion:** The collagen I hydrogel promoted tissue repair and reduced oxidative stress, as evidenced by decreased nitrite levels. This suggests that collagen I hydrogel is a promising treatment for pressure ulcers, providing continuous wound size reduction and lowering oxidative stress.

Keywords: chronic wound, dressing, wound healing.

Approval CEPE/CEUA: 9182090822

Acknowledgments: CAPES (finance code 001) and CNPq.

DEVELOPMENT OF A DIGITAL HISTOLOGY SLIDE ATLAS FOR ENHANCED LEARNING AT UNIFRAN

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Purpose: The development of a digital histology slide atlas for UNIFRAN aims to provide students with a more effective educational tool aligned with laboratory practices. Recognizing that many students struggle to associate microscope images with references in commercial atlases, there is a need for a resource that offers more precise correspondence and a contextualized learning experience. The digital atlas seeks to fill this gap by providing high-quality images of real samples, allowing direct comparison between microscopic observations and available visual references. **Methods:** This study describes the initial step necessary for developing the digital histology atlas, which involved analyzing histological atlases available online from other higher education institutions. The goal was to select the most suitable organizational model for UNIFRAN's atlas. Criteria evaluated included organizational models (by systems: respiratory, digestive, genital, urinary; by tissue types: epithelial, muscular, connective), image quality and captions, and staining techniques used. **Results:** The survey results indicated that existing atlases typically adopt an organization by tissue type or by tissue type plus system, never by system alone. Regarding image quality, most atlases lacked elements to help students identify tissues. The main issue with captions was the absence of magnification details. The most frequently used stains were hematoxylin-eosin and Giemsa. **Conclusion:** The findings highlight the need for a well-organized digital atlas that includes high-quality images with clear identification elements and detailed captions with magnification information. This will enhance the histology learning experience for UNIFRAN students, aligning educational tools with practical laboratory.

Keywords: educational tool, microscopy, tissues.

Acknowledgments: CAPES (finance code 001) and CNPq.

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EVALUATION OF THE HEPATOTOXIC, NEPHROTOXIC, AND TOXICOGENETIC POTENTIAL OF GREEN PROPOLIS EYE DROPS IN THE SUPERFICIAL CORNEAL HEALING AFTER CHEMICAL INJURY

Júlia Correa Lovo[1]*, Daniela Garcia Zoca[1], Márcio Luis Andrade e Silva[1], Denise Crispim Tavares[1], Matheus Reis Santos de Melo[1], Marcela de Melo Junqueira[1], Adriana Torrecilhas Jorge[2], Fernanda Gosuen Gonçalves Dias[1].

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Purpose: To investigate the deleterious systemics effects of green propolis eye drops instilled in rodent eyes every six hours for four days following the induction of a superficial left corneal ulcer with álcali. **Methods:** Forty rodents were distributed into eight groups: PV5 (treated with green propolis eye drops at 5 mg/mL), PV10 (green propolis eye drops at 10 mg/mL), PV15 (green propolis eye drops at 15 mg/mL), CS (solvent control - polysorbate and tween 80), CR (reference control - sodium hyaluronate at 1 mg/mL), CU (untreated ulcer control), CN (negative control for biochemical and genotoxicity tests - untreated), CP (positive control for genotoxicity tests - single dose of methyl methanesulfonate, intraperitoneally). After the treatments, blood samples were collected to measure the serum levels of the hepatic enzymes aspartate aminotransferase and gamma-glutamyltransferase, as well as urea and creatinine. This was done to assess potential hepatotoxic and nephrotoxic effects resulting from the treatments. Additionally, bone marrow was collected from the femurs for the micronucleus test, evaluating the genotoxic and cytotoxic potential of the treatments. **Results:** The results were evaluated through analysis of variance (ANOVA) and compared with those of the CN group. No group indicated hepatotoxic and nephrotoxic effects. In the toxicogenetic analysis, there were no statistical differences in micronucleus frequencies and the ratio of polychromatic erythrocytes to total erythrocytes, indicating the absence of genotoxicity and cytotoxicity, respectively. **Conclusion:** The green propolis-based eye drops did not cause hepatic, renal, or toxicogenetic damage, making them promising options for the treatment of superficial corneal ulcers.

Keywords: alkali, ulcerative keratitis, natural product, corneal re-epithelialization, systemic toxicity.

Approval CEPE/CEUA: 6061231118

Acknowledgments: University of Franca, CNPq and CAPES (finance code 001).

OPTIMIZATION OF HISTOPAQUE 1077 PROTOCOLS FOR PERIPHERAL BLOOD MONONUCLEAR CELL ISOLATION IN HEALTHY DOGS

Tayná Santos[1]*, Maysa Barbosa de Almeida[1], Caio Rafael Siqueira Vasconcelos[1], Caroline Pedroso de Oliveira[1], Fernanda Gosuen Gonçalves Dias[1], Marcela Aldrovani Rodrigues[1].

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Purpose: The isolation of peripheral blood mononuclear cells (PBMCs) is crucial for investigating immune responses to infectious diseases in hosts. The Histopaque 1077 method is widely used as the standard approach, including in veterinary medicine, though its application across different species requires specific validation. This study aimed to compare Histopaque 1077 protocols for isolating PBMCs from healthy dogs with blood counts within reference parameters. **Methods:** Blood samples were collected in tubes containing ethylenediaminetetraacetic acid anticoagulant and processed in sterile conical tubes with Histopaque 1077 columns. The protocols were evaluated considering different sample-to-Histopaque 1077 ratios (1:1 and 1:2 volume/volume), as well as the effects of blood refrigeration and phosphate-buffered saline (PBS) dilution (1:1 and 1:2 volume/volume) on the columns. **Results:** Fresh blood samples yielded a higher number of PBMCs compared to refrigerated samples. Additionally, samples diluted in PBS at both 1:1 and 1:2 ratios showed higher PBMC yields compared to undiluted samples, with no significant differences between the dilution ratios. No disparities were observed in PBMC recovery considering different sample-to-Histopaque 1077 ratios. **Conclusion:** The results highlight the importance of avoiding blood refrigeration and diluting blood in PBS to optimize the isolation of PBMCs from peripheral blood in healthy dogs. These findings contribute to the optimization of PBMC isolation protocols for future studies, particularly in clinical contexts involving dogs.

Keywords: cell separation, defense cell, polysucrose gradient.

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SAFARI MIRIM - ENVIRONMENTAL AWARENESS FOR CHILDREN THROUGH PLAYFUL ACTIVITIES

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Purpose: The "Safari-Mirim" is a pedagogical project aimed at cultivating environmental awareness among four- and five-year-old children from public and private primary schools in the city of Franca (SP) and the surrounding region. **Methods:** The playful project is carried out in a green space within the University of Franca (UNIFRAN, SP) campus, simulating a magical forest filled with taxidermied animals, balloons, lights and costumed characters, including fairies and talking animals. Through an educational trail, children embark on a unique mission to find the stolen scarlet macaw egg and help the environmental police officer and his trained dog arrest the hunter. During this fun and educational adventure, children have the opportunity to interact with different animal species, learn about their habits and understand the ecological importance of each one. The trail is complemented with stimulating activities, which are also playful, such as theaters, painting workshops, music, dances and valuable information about the environment. In addition to the in-person event, educational and instructional booklets were created so that participating children and other interested parties had access to the ecological trail at any time. **Results:** Creation of a physical (ISBN 978-65-88194-67-6) and digital (ISBN 978-65-88194-68-3) playbook containing the pedagogical trail and complementary activities. **Conclusion:** The pedagogical project "Safari-Mirim and the educational materials corresponding to the project encourage awareness and environmental education from childhood, promoting the construction of humanistic values aimed at developing a more sustainable society.

Keywords: educational booklet, environmental education, basic education, pedagogical project.

Acknowledgments: CAPES (finance code 001).

RESIDUAL TOXICITY OF SYNTHETIC CHEMICAL INSECTICIDES TO THE ASIAN CITRUS PSYLLID, *Diaphorina citri* KUWAYAMA (HEMIPTERA: LIVIIDAE)

Júlia Lara Nogueira[1]*, Vitor Silva Soares[1], Pedro Sandoval dos Santos Ribeiro Cavallari[1], Felipe Breda Alves[1], Alessandra Marieli Vacari[1].

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Purpose: The citrus market, driven by increasing sales and demand for both fresh produce and juice, has witnessed record prices. This surge is particularly attributed to a robust increase in exports, especially of orange juice to North America and Europe. However, a significant challenge lies in controlling greening, a disease affecting over 22% of orange trees in the citrus orchards. The asian citrus psyllid, the vector of greening, is primarily managed using synthetic chemical insecticides. Given the substantial damage caused by the asian citrus psyllid, this study aimed to evaluate the residual toxicity of various synthetic chemical insecticides on *Diaphorina citri* (Hemiptera: Liviidae). **Methods:** The insecticides tested included abamectin + cyantraniliprole, abamectin, cyantraniliprole, cyantraniliprole, spiropidone + acetamiprid, spiropidone + acetamiprid, cyantraniliprole + abamectin, and distilled water as a control treatment. **Results:** The results indicated that cyantraniliprole (Benevia®) maintained 65% effectiveness even 21 days after application. Other insecticides, such as abamectin (Vertimec 84sc®), also demonstrated significant residual control. **Conclusion:** Despite these efforts, it is important to note that the longevity of female citrus psyllids may contribute to the persistence of infestations. This study highlights the imperative need for the development of more robust and sustainable control methods for the Asian citrus psyllid, which should encompass not only strategies targeting insect mortality but also those addressing reproductive capacity and the longevity of female specimens. By addressing these factors is crucial to mitigating the impact of greening and ensuring the long-term sustainability of citrus production.

Keywords: chemical control, efficacy, greening, huanglongbing, pesticides.

Acknowledgments: FAPESP (process number 2019/18376-3), CAPES (finance code 001), and CNPq.

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ENDOMETRIAL RESPONSE TO UTERINE INFUSION OF OZONATED OIL IN POSTPARTUM PRIMIPAROUS-COWS: SCANNING ELECTRON AND LIGHT MICROSCOPY ANALYSES

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Purpose: To describe the endometrial microscopic changes induced by the uterine infusion of ozonized vegetal oil in post-partum primiparous cows. **Methods:** Fourteen primiparous cows received a single infusion of ozonized or non-ozonized oil (O3-oil and control groups, respectively; n=7 cows/group) between days 10 and 15 after calving. Scanning electron and light microscopy analyses were performed immediately before and 15 days after treatment (D0 and D15, respectively). The histomorphometry parameters were: Endometrial epithelium height, glandular epithelium height, glandular diameter and glandular luminal area. **Results:** Independently of the group ($P > 0.1$), the glandular epithelium height and the glandular diameter remain constant ($P > 0.1$). After treatment, endometrial glandular dilatations were not found in the O_3-oil group. In opposite, the control group showed an 8-fold increase ($P < 0.01$) for glandular luminal area associated to diffuse endometrial hyperemia, hemorrhagic spots and dilated endometrial vessels. Scanning electron microscopy indicated the absent of morphological abnormalities induced by the uterine infusion of ozonized sunflower oil. Specific microvilli-covered cells were identified in all groups and evaluation moments. Cells were predominantly covered by microvilli. Around 30% of the observed fields presented a surface with less than 50% microvilli coverage. **Conclusion:** Ozonized oil infusion did not induce deleterious changes on the luminal surface of the uterus and endometrial glands in post-partum cows. Furthermore, local O_3 therapy prevent the occurrence of glandular dilatation and chronic endometritis.

Keywords: cattle, endometrial gland, ozone therapy, puerperium, uterus.

Approval CEUA: 01/2024-CEUA

Acknowledgments: CAPES (finance code 001) and CNPq.

UTERINE OZONE THERAPY FOR THE TREATMENT OF POST-PARTUM ENDOMETRITIS IN COWS: *IN VITRO* AND *IN VIVO* ANALYSES

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Purpose: To evaluate the anti-inflammatory and antimicrobial actions of ozonized sunflower oil in post-partum cows. **Methods:** Fourteen cows received a single infusion of ozonized or non-ozonized oil (O_3-oil and control groups, respectively; n=7 cows/group) between days 10 and 15 after calving. Uterine cytology was performed immediately before and 15 days after treatment (D0 and D15, respectively). The percentage of neutrophils was established considering 200 cells counted per microscopic field. Antibiotic sensitivity testing (AST), minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of ozonized and non-ozonized oils were determined against four pathogens isolated from the uterus of post-partum cows: *Streptococcus* spp., *Staphylococcus* spp., *Escherichia coli* and A*rcanobacterium pyogenes*. All cows were exposed to a same bull 15 days after treatment and pregnancy diagnose was done 60 days later. **Results:** Independently of the treatment, a reduction ($P<0.05$) in the polymorphonuclear infiltrate (PMN) was found on D15. The AST indicated the sensitivity of all bacteria to the ozonized oil. Independently of the pathogen, the zone inhibitions were greater ($P<0.05$) for ozonized oil than to Tetracycline. MIC and MBC of the ozonized oil were ≤ 1.50µg mL-1. Non-ozonized oil did not shower antimicrobial properties. On day 60 after calving, 85.7 and 57.2% of the cows from O_3-oil and control groups were pregnant. **Conclusion:** Ozonized oil had bactericidal action against uterine pathogens and did not induce post-partum endometritis. Ozone therapy during the puerperium increased pregnancy rate.

Keywords: cattle, cytology, integrative medicine, ozonized oil, uterus.

Approval CEUA: 01/2024-CEUA.

Acknowledgments: CAPES (finance code 001) and CNPq.

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IANTIMICROBIAL SUSCEPTIBILITY TESTING (AST) OF ALGINATE/TOFU-BASED HYDROGEL ENRICHED WITH OZONIZED OIL AGAINST FUNGI AND BACTERIA

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Purpose: To evaluate the sensibility of fungi and bacteria to three ozonized AS/tofu hydrogels using the AST. **Methods:** Three increasing volumes of ozonized sunflower oil were incorporated into the liquid form of AS/tofu hydrogel (O_3-1, O_3-2 and O_3-3 AS/tofu). Pure AS/tofu hydrogel and 50% chlorhexidine used as negative and positive controls. Disk diffusion method was used to determine the sensibility of bacteria (*Staphylococcus aureus, S. epidermidis, Streptococcus pyogenes, Escherichia coli*) and fungi (*Candida albicans* and *C. krusie*) to the hydrogels. Paper disks saturated with the hydrogels were placed on a lawn of bacteria/fungi seeded on the surface of the medium. The presence of inhibition zone around the disk 24h after incubation indicated the antimicrobial activity of the drug. **Results:** Inhibition zones were visualized around the disc soaked with chlorhexidine and ozonized AS/tofu hydrogels (O_3-1, O_3-2 and O_3-3). Only the pure AS/tofu hydrogel did not show antimicrobial action. **Conclusion:** The three formulations of alginate/tofu-based hydrogel enriched with ozonized oil inhibited the *in vitro* growth of fungi and bacteria.

Keywords: biomaterial, disc diffusion, integrative medicine, ozone therapy, polymer.

Acknowledgments: CAPES (finance code 001) and CNPq.

ANTIMICROBIAL ACTION OF ALGINATE/TOFU-BASED HYDROGEL ENRICHED WITH OZONIZED OIL AGAINST SENSITIVE AND MULTIDRUG RESISTANT BACTERIA

Maria E.A. Fonseca[1]*, Cristiane M.P.P. Ferreira[1], Ana P.B. Neto[1], Maria A.L.V. Ambrósio[1], Heber E. Andrada[1], Eduardo F. Molina[1], Jair C. Ferreira[1].

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Purpose: To evaluate the antimicrobial action of three SA/tofu hydrogel formulations enriched with ozonized sunflower oil against sensitive and multidrug resistant bacteria. **Methods:** Three increasing volumes of ozonized sunflower oil were incorporated into the liquid form of SA/tofu hydrogel (G1, G2 and G3 groups). Pure AS/tofu hydrogel was used as control. The antimicrobial activity of the hydrogels was evaluated considering their minimum inhibitory concentration (MIC) and minimum bactericidal concentration (CBM) against sensitive bacteria (*Staphylococcus aureus, S. epidermidis, Streptococcus pyogenes, Escherichia coli*). In addition, the MIC e CBM of the hydrogels against multidrug pathogens (MD *S. aureus*, MD S*. epidermidis*, MD *E. coli* and MD *Pseudomonas aeruginosa*) were also determined. For each hydrogel, 12 serial dilutions (0.08 to 100%) were used to complete the MIC and CBM. **Results:** The antimicrobial effectiveness of G1, G2 and G3 was proportional to their concentration of ozonized oil. The SA/tofu hydrogel with the lowest ozone enrichment rate (G1) had a MIC and CMB against sensitive and multidrug resistant bacteria less than or equal to 50%. Independently of the pathogen, pure SA/tofu hydrogel did not show antimicrobial action (MIC and CBM >100%). **Conclusion:** The three formulations of alginate/tofu-based hydrogel enriched with ozonized sunflower oil showed bactericidal action against sensitive and multidrug resistant bacteria.

Keywords: : bactericide, integrative medicine, ozone therapy, polymer.

Acknowledgments: CAPES (finance code 001) and CNPq.

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EVALUATING OF CAATINGA GREEN PROPOLIS IN A FORMALIN MODEL: MICROEMULSION IMPACTS

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Purpose: One of the emerging types of Brazilian propolis is the green propolis from the Caatinga, which exhibits various biological activities, making it a material with high potential in pharmaceutical product development. However, due to its resinous composition and the low solubility of its components, its use may be restricted for release. Thus, the use of nanotechnology becomes an ally to overcome these limitations. In this project, the analgesic and anti-inflammatory potential of Caatinga green propolis in its free form (EPV) and nanoencapsulated form (NEP) was investigated. **Methods:** A water-in-oil nanoemulsion containing EPV was developed using a surfactant mixture of Span 80 and Tween 80. The analgesic activity of EPV and NEP was analyzed through the formalin test in mice. EPV was evaluated at dosages of 30, 60 and 90 mg, and NEP at dosages of 3, 9 and 27 mg. Dexamethasone was used as a reference control. **Results:** NEP showed analgesic potential in the neurogenic phase at dose of 9 mg/kg, and showed potential in the anti-inflammatory fase at doses of 9 and 27 mg/kg in mice. On the other hand, EPV did not show significant activity. These results highlight the potential of Caatinga green propolis in the form of nanoemulsion in antinociceptive and anti-inflammatory processes.

Keywords: Green Propolis, nanotechnology, nociception.

Approval CEPE/CEUA: 8933171122

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EFFECT OF RED PROPOLIS CONJUGATED TO NANOSTRUCTURED LIPID CARRIER ON ANIMAL NOCICEPTION MODEL

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Purpose: This study aims to investigate the efficacy of red propolis, a substance renowned for its anti-inflammatory properties and widely utilized across different regions globally, particularly when incorporated into a nanostructured lipid carrier (CLN-EPV). By examining its effects on a nociception model, we seek to elucidate the potential benefits of utilizing carriers for controlled release, thereby expanding our understanding of red propolis as a therapeutic agent. **Methods:** To this end, open field, formalin, mechanical sensitivity and measurement of liver toxicity mediators in rats were performed. **Results:** In the open field test, no significant differences ($P>0.1$) were observed. However, in mechanical sensitivity assessments, in both phases and in healthy animals and those undergoing an inflammatory process, CLN-EPV was able to reduce the response time. In the formalin assay, the association of red propolis with CLN at doses of 0.5, 1 and 3 mg/kg showed antinociceptive activity in the inflammatory phase ($P<0.05$), but no activity was observed in the neurogenic phase ($P>0.1$). **Conclusion:** Thus, it can be concluded that CLN-EPV has activity in modulating pain and inflammation in models induced by carrageenan and formalin.

Keywords: Red propolis, nanostructured lipid carrier, nociception.

Approval CEPE/CEUA: 003/14.

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CHARACTERIZATION OF FIBROBLASTS IN CANINE MAMMARY CARCINOMAS: CORRELATION OF DENSITY AND NUCLEAR PARAMETERS WITH HISTOLOGICAL GRADES

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Purpose: Mammary carcinomas are common in dogs and often malignant. These tumors consist of two main components: the epithelial (epithelial and myoepithelial cells) and the stromal (extracellular matrix and fibroblasts). While epithelial cells and the extracellular matrix have been extensively studied and linked to tumor recurrence, progression, and clinical outcomes, fibroblasts, which produce collagen, have been underexplored. This study aims to evaluate fibroblasts in canine mammary carcinomas, focusing on their nuclear parameters and density, to understand their variations across different histological grades and their role in tumor dynamics and therapeutic potential. **Methods:** Sixty-four paraffin-embedded tissue blocks from dogs diagnosed with mammary carcinoma at the Veterinary Hospital of UNIFRAN were analyzed. These blocks were sectioned, stained with hematoxylin and eosin, and graded histologically from I to III according to the Nottingham system. Higher grades correlate with poorer prognosis and increased recurrence. Fibroblast density and the geometric and textural characteristics of their nuclei were quantified using ImageJ® software. Correlations between fibroblast characteristics and histological grades were analyzed, with significance set at $P < 0.05$. **Results:** Preliminary results indicated a positive correlation ($P < 0.05$) between fibroblast density and tumor histological grade ($P < 0.05$). Additionally, there was a correlation between nuclear shape and histological grades; as the grade increased, the nuclei became less elongated and narrower. **Conclusion:** The evaluation revealed significant correlations between fibroblast density, nuclear shape, and tumor severity in canine mammary carcinomas. These findings highlight the importance of fibroblasts in canine mammary carcinoma progression.

Keywords: breast tumor, histopathological analysis, tumor microenvironment.

Acknowledgments: CAPES (finance code 001) and CNPq.

INVESTIGATION OF THE ANTIMICROBIAL ACTION OF THE BLUE LIGHT AND OZONE ASSOCIATED (PHOTO-OZONE THERAPY)

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Purpose: To evaluate the antimicrobial action of photo-ozone therapy against fungi and bacteria. **Methods:** Fungi (*C. albicans, C. krusei, C. tropicalis* and *C. parapsilosis*) and bacteria (*S. aureus* and *E. coli*) were cultured in Sabouraud and BHI medium, respectively. The pathogens were submitted to four treatments: O_2-O_3 gas mixture, laser therapy, laser therapy and O_3 associated and pure O_2 (O_3, LT, LT-O_3 and control groups). In the O_3 group, the culture plates were exposed to 48µg O_3 mL-1 during 15 min. In the LT group, pathogens were irradiated using blue laser with a light absorption wavelength of 405 nm and a final fluence of 80 J cm2. Cultures from LT-O3 group were exposed to laser and O_3 treatments in sequence. Control group exposed to a O_2 for 15 min. The treatments were performed once a day for three days. After the last treatment, the pathogens were recultured in a new medium for additional 24 hours, in order to evaluate the microbial growth. The procedures were performed in triplicate. **Results:** LT-O_3 treatment showed germicide effect against *C. albicans*. Uncountable UFCs have been detected 24 hours after reculture in the remain treatments, independently of the pathogens. **Conclusion:** Photo-ozone therapy was effective to inactivate *C. albicans*. At the moment, additional studies are being carried out to determine the ideal methodology for the therapy against bacteria.

Keywords: Laser therapy, infections, ozone, bacterium.

Acknowledgments: PIBIC, CAPES (finance code 001), Ozone & Life.

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SELECTIVITY OF SYNTHETIC CHEMICAL INSECTICIDES USED ON COFFEE CROP ON THE PREDATOR *Chrysoperla externa*

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Purpose: Pesticides are considered the first line of defense for the control of pests and diseases. This research aimed to evaluate the selectivity of the predator *Chrysoperla externa* to synthetic chemical insecticides used in coffee crops. **Methods:** The spray volume used was 400 L haμ[1]. The commercial insecticides, active ingredients, and doses used were: Cartap® (Cartape hydrochloride – 1.0 kg ha^{-1}), Altacor® (Chlorantraniliprole – 0.1 L ha^{-1}), Abamectina 18%® (Abamectin 1.0 L ha^{-1}), Voliam Targo® (Chlorantraniliprole; Abamectin- 0.5 and 1.0 L ha^{-1}), Hangar® (Novaluron 0.5 L ha^{-1}), Rimon® (Novaluron 0.5 L ha^{-1}), Nomolt® (Teflubenzuron – 0.5 L ha^{-1}), Hayate® (Cyclaniliprole – 0.6 L ha^{-1}), Sivanto Prime® (Flupyradifurona – 0.75 L ha^{-1}), Trebon® (Etofenproxi – 2.0 L ha^{-1}), Plethora® (Indoxacarb; Novaluron -0.7 L ha^{-1}), Benevia® (Cyantraniliprole -1.5 L ha^{-1}), Sperto® (Acetamiprid; Bifenthrin- 0.5 L ha^{-1}), Curbix® (Etiprole- 2.0 L ha^{-1}), Bold® (Acetamiprid; Fenpropathrin -1.0 L ha^{-1}), Klorpan 480® (Chlorpyrifos- 2.0 L ha^{-1}), Voraz® (Methomyl; Novaluron- 1.0 L ha^{-1}), Curyom® (Profenofos; Lufenuron- 0.8 L ha^{-1}), Porcel® (Pyriproxyfen – 0.7 ha^{-1}), Danimen® (Fenpropathrin – 0.3 L ha^{-1}), Karate Zeon® (Lambda-Cyhalothrin- 0.1 L ha^{-1}), Oberon® (Spiromesifen- 0.6 L ha^{-1}), KHA1.25® – 0.1 L ha^{-1}, and KHP2.25®- 0.2 L ha^{-1}. **Results:** Insecticides such as Altacor®, Porcel®, and Oberon® were selective for *C. externa* in all three stages, while the others caused more than 50% mortality. **Conclusion:** Most of the insecticides tested cannot be recommended due to their high mortality rates on *C. externa.* This study highlights the need for more selective and sustainable pest control strategies in coffee cultivation to protect beneficial predators like *C. externa.*

Keywords: lacewing, selectivity, biological control, insecticides, susceptibility.

Acknowledgments: CAPES (finance code 001) and CNPq.

PHOTOGRAPHS OF CHRYSOPIDAE USING A STEREOSCOPE WITH HIGH RESOLUTION CAMERA FOR SPECIES IDENTIFICATION

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Purpose: Coffee was introduced to Brazil in the early 18th century and is now crucial to the country's economy, with Brazil being the largest producer and exporter of coffee. Natural predators, such as those from the Chrysopidae family, are commonly found in coffee crops. The objective of this research was to capture detailed photographs of all developmental stages of Chrysopidae predators to create a comprehensive reference book. **Methods:** Photographs were taken using a trinocular stereomicroscope, BEL® model SZT, equipped with a 12-megapixel resolution camera and the Capture2.1 application with a 1µm scale. **Results:** High-resolution photographs of the egg, larva, pupa, and adult stages of the *Chrysoperla externa* species were obtained. **Conclusion:** The detailed photographs of *C. externa* allow for a more precise analysis of its developmental stages and morphological characteristics, aiding growers in accurately identifying this beneficial predator in their crops.

Keywords: Green lacewings, biological control, integrated pest management.

Acknowledgments: CAPES (finance code 001) and CNPq.

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PHOTOGRAPHS OF COFFEE PESTS USING A STEREOSCOPE WITH HIGH RESOLUTION CAMERA FOR SPECIES IDENTIFICATION

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Purpose: Brazil has emerged as a key player in the global coffee export market, making a significant contribution to the country's economy. However, crop losses due to pests, particularly the coffee leaf miner, *Leucoptera coffeella* (Lepidoptera: Lyonetiidae), are substantial. This pest feeds on the palisade parenchyma of coffee leaves, causing tissue necrosis, known as mines. The objective of this research was to capture detailed photographs of all stages of the leaf miner's lifecycle to create a comprehensive reference book. **Methods:** Photographs were taken using a trinocular stereomicroscope, BEL® model SZT, equipped with a 12-megapixel resolution camera, and the Capture2.1 application with a 1µm scale. **Results:** High-resolution photographs of the egg, larva, pupa, and adult stages were obtained, clearly showing the sexual dimorphism between males and females. **Conclusion:** The detailed photographs of the leaf miner allow for a more precise analysis of its developmental stages and morphological characteristics, aiding producers in accurately identifying L. coffeella in their crops.

Keywords: coffee leaf miner, integrated pest management, coffee crop.

Acknowledgments: CAPES (finance code 001) and CNPq.

SELECTIVITY OF INSECTICIDES USED ON COFFEE CROP ON ADULTS OF THE PREDATOR *CHRYSOPERLA EXTERNA* (NEUROPTERA: CHRYSOPIDAE)

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Purpose: This study aims to evaluate the selectivity of various insecticides on the predator *Chrysoperla externa* (Neuroptera: Chrysopidae) in coffee-growing areas, providing valuable information for integrated pest management (IPM). **Methods:** The bioassays were conducted at the Laboratory of Entomology, University of Franca. Several insecticides recommended for coffee pest control were tested: abamectin (Abamectin Nortox® – 1 L ha^{-1}), chlorantraniliprole (Altacor® – 0.1 kg ha^{-1}), profenophos + lufenuron (Curyom® – 0.8 L ha^{-1}), novaluron (Hangar® – 0.5 L ha^{-1}), chlorantraniliprole + abamectin (Voliam Targo® – 0.5 L ha^{-1}), metomil + novaluron (Voraz® – 700 mL ha^{-1}), piriproxyfen (Porcel® – 700 mL ha^{-1}), lambda-cyhalothrin (Karate Zeon® – 100 mL ha^{-1}), spiromesifen (Oberon® – 600 mL ha^{-1}), and acetamiprid + fenpropatrin (Bold® – 1.0 L ha^{-1}). The evaluation focused on both lethal and sublethal effects on *C. externa* adults. Mortality was recorded after exposure to treated leaves, and sublethal effects were assessed by counting the number of eggs and larvae produced by surviving adults. Statistical analyses were performed to determine the selectivity of the insecticides, classifying them according to their impact on the predator, following IOBC standards. **Results:** Among the insecticides tested, novaluron, chlorantraniliprole, abamectin, acetamiprid + fenpropathrin, and pyriproxyfen allowed the production of offspring by *C. externa* females. **Conclusion:** These findings suggest that the insecticides allowing females to produce offspring are safer for *C. externa*. However, for the other insecticides tested, applications should be performed during periods of low *C. externa* activity to minimize direct exposure to the predator.

Keywords: biological control, integrated pest management, green lacewings.

Acknowledgments: CAPES (finance code 001) and CNPq.

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CAPTURE AND IDENTIFICATION OF PHLEBOTOMINES (DIPTERA: PSYCHODIDAE) IN THE WINTER PERIOD OF 2022 IN THE ITAMBÉ CAVE, ALTINÓPOLIS, SÃO PAULO, BRAZIL

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Purpose: In view of the increase in cases of visceral leishmaniasis in dogs in the state of São Paulo, the aim of this study was to capture and identify phlebotomine sandflies in gruta do Itambé (Altinópolis/SP). **Methods:** Between June and August of 2022, entomological captures were carried out with light traps "Center on Disease Control" (CDC), during three consecutive nights in the last week of each month, totaling three months. Ten traps were installed at strategic points, with distances of approximately 10 meters from each other, at 1.5 meters above the ground. Traps were numbered 1 to 6 were positioned inside the grotto and traps 7 to 10 remained outside the grotto. After the collections, the sandflies were morphologically identified, relating the data with the collection points. **Results:** In the captures carried out, 220 specimens were identified (166 males - 75,45%; and 54 females - 24,55%). The specie *Lutzomyia longipalpis* was predominant, totaling 192 sandflies captured, which corresponded to 87,27%. The other species identified were *Lutzomyia itambe* (9,93%), *Brumptomyia avellari* (0,45%), *Evandromyia carmelinoi* (0,91%) and *Evandromyia edwardsi* (0,45%). Specimens were also captured which were only possible to identify the genus, including 2 specimens of *Lutzomyia sp.* (0,91%) and 2 *Brumptomyia sp.* (0,91%). **Conclusion:** It is concluded that these findings have a crucial role in public health, as there was a predominance of the species *L. longipalpis*, which is considered the main species related to the transmission of visceral leishmaniasis in dogs and humans in Brazil.

Keywords: leishmania, cave environment, vector.

Acknowledgments: UNIFRAN and CAPES (finance code 001).

IN VITRO ANTIMICROBIAL ACTIVITY OF TWO NATURAL COMPOUNDS AGAINST ORAL PATHOGENS

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Purpose: The aim of the present work was to evaluate the *in vitro* antimicrobial activity of two compounds (usnic acid and rosmarinic acid) isolated from natural sources against oral pathogens. **Methods:** Usnic acid and rosmarinic acid were isolated by HPLC of extracts obtained from *Usnea steineri* and *Origanum vulgare*, respectively. To determine the antimicrobial activity, the broth microdilution technique was used to obtain the Minimum Inhibitory Concentration (MIC) and then the Minimum Bactericidal Concentration (MBC). The bacteria used in the present study were: *Streptococcus mutans, Streptococcus mitis, Streptococcus sanguinis, Streptococcus sobrinus, Streptococcus salivarius, Lactobacillus casei* and *Enterococcus faecalis*. **Results:** The best results were obtained with usnic acid with results ranging from 12.5 to 25.0µg/mL for the selected bacteria. **Conclusion:** The results of this study show the antimicrobial potential of usnic acid against oral microorganisms and can be used to develop new strategies to maintain the balance of the oral microbiota.

Keywords: usnic acid, rosmarinic acid, antimicrobial activity.

Acknowledgments: FAPESP, CAPES and CNPq.

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INFLUENCE OF RED LED LIGHT ON INCREASING THE ANTIFUNGAL ACTIVITY OF *Physalis angulata* AGAINST *Candida* SPECIES

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Purpose: *Physalis angulata L.*, is a medicinal plant exhibiting bioactivities against viruses, tumors, and microbes. Objective: This study aimed to evaluate the antifungal properties of the methanolic fraction PA-2F against *Candida* species, both with and without irradiation using a Light Emitting Diode (LED) in the red spectrum. **Methods:** The chloroform extract from the leaves of *P. angulata* branches was fractionated in silica under vacuum, providing the PA-2F (MeOH) fraction. Subsequently, this fraction underwent further purification through exclusion chromatography and flash chromatography using the Büchi Pure 850® equipment, leading to the isolation of compound 1. The antifungal activity of the PA-2F fraction, ranging from 15.62 to 2.000 µg/mL, was tested against three *Candida* species. Biofilms were formed in 96-well microplates, exposed to PA-2F, and irradiated with red LED (590 nm, 3.000 mW-3.0 J/cm²) continuously for 10 minutes. The biofilm inhibitory concentration (CBIM) was determined using the total plate count method. **Results:** ^{1}H and ^{13}C NMR spectrum data of compound 1, along with a UV band at λ_{max} = 230 nm, suggested the presence of withangulatin B. The CBIM obtained for all *Candida* species exceeded 2.000 µg/mL. However, exposure of biofilms to 250 µg/mL of PA-2F followed by red LED irradiation caused a significant reduction of 4.88± 0.12, 4.29±0.15, and 4.16±0.06 Log10 CFU/mL for *C. albicans*, *C. glabrata*, and *C. parapsilosis*, respectively, compared to unexposed and non-irradiated biofilms, demonstrating the fungicidal activity of the fraction. **Conclusion:** These results highlight the potential of combining phytochemistry with phototherapy for fungal control.

Keywords: Light-emitting diode, Photodynamic inactivation, Phototherapy, Solanaceae.

Acknowledgments: CAPES, CNPq and FAPESP.

IN VITRO EVALUATION OF THE ANTIMICROBIAL ACTIVITY OF POLYALTHIC ACID AND A SEMI-SYNTHETIC DERIVATIVE AGAINST CARIOGENIC BACTERIA

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Purpose: The aim of this study was to evaluate the *in vitro* antimicrobial activity of polyalthic acid (a *Copaifera* oilresin natural product) and its semi-synthetic derivative CM2-23 against a representative panel of bacteria related to caries *(Streptococcus mutans, Streptococcus mitis, Streptococcus sanguinis, Streptococcus sobrinus, Lactobacillus casei, Streptococcus salivarius,* and *Enterococcus faecalis).* **Methods:** The microdilution method in microplates was used to determine the Minimum Inhibitory Concentration (MIC) and the Minimum Bactericidal Concentration (MBC), using chlorhexidine digluconate as a positive control and resazurin as an indicator of bacterial growth. Results: In relation to Polyalthic Acid, the bacteria showed MICs ranging from 100 to 200 µg/mL, except for *S. mutans* (50 µg/mL); CM2-23 presents MICs of all substances ranging from 50 to 100 µg/mL, except for *S. sobrinus* (25 µg/mL) and *L. casei* (6.25 µg/mL). The MBC values were equal to the MICs, indicating that the bacteriostatic and bactericidal concentrations did not differ from each other. **Conclusion:** Based on the results obtained, it can be concluded that CM2-23 showed promising results for most of the tested bacteria.

Keywords: polyalthic acid, antibacterial, caries, semi-synthetic derivative

Acknowledgments: FAPESP, CAPES and CNPq.

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DEVELOPMENT OF A CHROMATOGRAPHIC METHOD FOR THE ANALYSIS OF *Vochysia divergens* EXTRACT USING THE BUCHI® PURE C-850 SYSTEM WITH ELSD DETECTOR

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Purpose: The Evaporative Light Scattering Detector (ELSD) provides efficient analysis of analytes without chromophores or with weak chromophores. The Buchi® Pure C-850 system is an equipment with an ELSD detector, enabling medium and high-pressure flash chromatography. Objective: The objective of this study was to develop an analytical method using the Büchi® device to purify compounds with low UV absorption present in the extract of *Vochysia divergens*. **Methods:** The ethanolic extract of *V. divergens* bark (VC) was evaluated under various conditions on the Pure C-850 equipment, varying parameters such as mobile phase, stationary phase, flow rate, elution mode (gradient and isocratic), as well as ELSD absorption limits. After method optimization, the VC extract (500 mg) and fraction VC 16 G (166 mg) were separately injected into the device, employing the following conditions: UV scan: 215 to 400 nm, ELSD from 50 to 500 mV, flow rate 5 mL/min, ecoflex silica cartridge (50 µm, 12 g), eluent: CHCl3/MeOH gradient (10-100% MeOH, 40 min). **Results:** The medium-pressure chromatographic analyses performed on the Pure C-850 equipment provided fractions enriched in specialized metabolites, notably fraction VC-27H (0.4 mg), derived from VC 16G, whose analyses by ^{1}H and ^{13}C NMR suggest the presence of the pentacyclic triterpenes 24-hydroxy-tormentic acid and 4-*epi*-niga-ichigoside in this sample. **Conclusion:** The chromatographic method developed on the Buchi® Pure C-850 device, coupled with the ELSD detector was effective in detecting and purifying triterpenes with low UV absorption present in *V. divergens.*

Keywords: Cambará, pentacyclic triterpenes, Vochysiaceae.

Acknowledgments: CAPES, CNPq and FAPESP.

CHEMICAL STUDY AND *IN VIVO* TOXICITY EVALUATION OF THE ETHANOLIC EXTRACT FROM THE BARK OF *Vochysia divergens*

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Purpose: *Vochysia divergens* (Vochysiaceae) exhibits ecological and physiological characteristics that favor its adaptation to seasonally flooded fields. **Objective:** The objectives of this study were to investigate the chemical constituents present in the crude extract of *V. divergens* (VC) and to evaluate the in vivo toxicity of the extract in two alternative models. **Methods:** The extract from the bark of *V. divergens* (VC) was obtained through cold maceration in EtOH. Initially, 3 g of the extract were subjected to chromatographic purification by exclusion on Sephadex LH-20, eluted in MeOH, resulting in fractions VC-9A to VC-9L. Fraction VC-9H (89 mg) was purified on a silica gel 60 adsorption chromatography column, yielding fractions VC-18A to VC-18K. Subsequently, fraction VC-18F (7 mg) was analyzed by HPLC-DAD in reverse-phase C18 and ^{1}H NMR. Additionally, the VC extract was evaluated for its toxicity against *Caenorhabditis elegans* and *Galleria mellonella.* **Results:** In the HPLC analysis, fraction VC-18F showed a retention time (tR) of 20.49 minutes and a λ_{max} of 270 nm. The ^{1}H NMR spectrum of this fraction displayed signals consistent with an alkyl glycoside. The VC extract demonstrated no toxicity, maintaining 100% survival in the proposed models. **Conclusion:** The study conducted so far has led to the isolation of an alkyl glycoside and the confirmation of the absence of toxicity of the extract under the conditions evaluated against *C. elegans* and *G. mellonella*.

Keywords: Cambará, C*aenorhabditis elegans*, *Galleria mellonella*.

Acknowledgments: CAPES, CNPq and FAPESP.

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EFFECT OF THE ETHANOLIC EXTRACT OF BROWN PROPOLIS ON THE INHIBITION OF STREPTOCOCCUS MUTANS BIOFILM FORMATION

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Purpose: To evaluate the antimicrobial potential of the ethanolic extract of brown propolis (BPEE) in inhibiting the formation of biofilm constituted by *Streptococcus mutans* (ATCC 25275). **Methods:** To evaluate the capacity of BPEE to inhibit the biofilm formation it was determined the minimum inhibitory concentration capable of inhibiting 50% of the biofilm (MICB50) against the main initiating microorganism of the cariogenic process (*S. mutans*) The method used was the microdilution in microplate with modifications. **Results:** The $MICB_{50}$ was found at a concentration of 12.5 µg/mL of BPEE against the evaluated bacteria. **Conclusion:** Based on the result obtained, it can be concluded that the ethanolic extract of brown propolis presented a high antimicrobial activity in the biofilm formation inhibition assay.

Keywords: Brazilian brown propolis, biofilm, *Streptococcus mutans*, caries.

Acknowledgments: FAPESP, CAPES and CNPq.

SYNTHESIS AND CHARACTERIZATION OF $GdVO_4$ MATRIX DOPED WITH LANTHANIDE IONS VIA NON-HYDROLITIC SOL-GEL METHOD

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Purpose: The objective of this study is to prepare and characterize the gadolinium vanadate ($GdVO_4$) matrix doped with neodymium (Nd^{3+}) ions using molar ratios of 1:1 and 1:1.48 ($GdVO_4$) and to investigate its spectroscopic properties. The samples were prepared using the non-hydrolytic sol-gel. **Methodology:** based on the article by Tanaka et al. (2021). Vanadium acetylacetonate was dissolved in absolute ethanol in a sealed environment with a nitrogen atmosphere, ensuring the absence of water in the system. Subsequently, gadolinium chloride was added in molar ratios of 1:1 and 1:1.48 relative to the vanadium ion. The reaction mixture was stirred at 110°C, with the system kept closed under reflux in a thermostatic bath at 10°C in an inert atmosphere (nitrogen). After this period, the mother solution was allowed to rest at room temperature for 24 hours, then dried at 100°C and thermally treated at 800°C. Characterization of the obtained product was performed using X-ray diffraction, infrared vibrational spectroscopy, photoluminescence spectroscopy, dynamic light scattering, and zeta potential measurements. **Results:** The samples exhibit different hydrodynamic radius sizes: 497 nm for the 1:1 sample and 337nm for the 1:1.48 sample. The X-ray diffraction patterns show the characteristic peaks of the $GdVO_4$ matrix in the 1:1 ratio. The excitation and emission spectra indicate the presence of the neodymium ion (Nd^{3+}), with the observation of the transitions $^4I_{9/2} \rightarrow {}^2H_{9/2}$, $^4F_{5/2}$, and $^4F_{3/2} \rightarrow {}^4I_{13/2}$. **Conclusion:** The results demonstrate the formation of the desired matrix with characteristic peaks and the incorporation of the neodymium ion.

Keywords: Neodymium, non-hydrolytic sol-gel, nanothermometer, imaging, upconversion.

Acknowledgments: FAPESP, CAPES and CNPq.

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SYNTHESIS AND CHARACTERIZATION OF TITANIA-BASED PHOTONIC CRYSTALS

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Purpose: The general objective of this project is to evaluate the influence of different precursors, specifically titanium butoxide and titanium isopropoxide, on the physicochemical properties of the final material. **Methods:** Among the preparation processes, the sol-gel method stands out due to its low synthesis temperature, the purity of the final material, and the molecular-level homogeneity of the precursors. For both syntheses, 4.1 mL of deionized water, 46.675 mL of ethanol, 5.675 mL of ammonia and 2.0 µL of europium chloride aqueous solution (0.05 mol/L) were used. However, the precursor amounts were 3.6231 mL of titanium isopropoxide and 3.6231 mL of titanium butoxide for each synthesis, respectively. The synthesized materials were characterized by X-ray diffraction (XRD), infrared vibrational spectroscopy (FTIR), and dynamic light scattering (DLS). **Results:** The results obtained from both XRD and FTIR revealed similar structures for both syntheses, identifying the presence of characteristic peaks of TiO2 in the anatase phase (PDF# 04-0477) and characteristic vibrational bands of this matrix, respectively. However, the DLS results showed that the precursors significantly influenced the hydrodynamic radius of the particles, with a value of 347 nm obtained from titanium isopropoxide and 1756 nm for the particles prepared from titanium butoxide. **Conclusion:** The studies conducted demonstrate that, despite the structural similarities observed in both syntheses, the choice of precursor exerts a crucial influence on the control of particle size, which can be decisive for specific applications that depend on this physical property.

Keywords: periodic structures, sol-gel, titanium oxide.

Acknowledgments: FAPESP, CNPq, CAPES.

THE INFLUENCE OF TYPE II BOVINE COLLAGEN ON GERMINATION OF PLANTS

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Purpose: The aim of this study was to assess the influence of type II bovine collagen (BCII) on cucumber seed germination properties. **Methods:** Cucumber seeds were germinated using petri dish (2 seeds per dish) with a total of 10 seed per treatment. Ultrapure water was used as control, and BCII was used as a natural biostimulant to improve the germination. The seeds were kept under controlled temperature (25°C) and humidity conditions (~70%). Root length (RL) and stem length (SL) were determined at interval times of 3 days over 12 days of germination. The dry mass of the plant parts (root and steam) were measured after 12 days of germination. **Results:** The germination, refers to the initial appearance of the radicle. In this case, the use of BCII acellerates the germination of seeds, in which during the first 72h it was possible to measured the root of the plants. Using water, germination is slower compared to using collagen. **Conclusion:** The addition of collagen positively influenced the germination and growth of cucumber seeds in the first 6 days, increasing the germination rate, root and stem length, and dry mass.

Keywords: collagen, germination, seed.

Acknowledgments: FAPESP, CAPES and CNPq.

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POLYUREA MEMBRANES AS BIOAMATERIAL FOR DRUG DELIVERY SYSTEMS

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Purpose: The aim of the project was to incorporate an antibacterial drug model into a polymeric polyurea membrane as potential drug delivery system. **Methods:** A polyurea synthesis is carried out using a crosslinking agent (hexamethylene triisocyanate - HDI), and polyetheramine based on poly(ethylene oxide) (PEO) of molecular mass (MM). The ratio used is 1:1 PEO:HDI, and in the middle of the synthesis you have to add the drug to the PEO to incorporate it. **Results:** The membrane was flexible, transparent and insoluble in water. The swelling behavior showed a high degree of water uptake by the membrane. The Fourier Transform Infrared Spectroscopy (FTIR) results confirmed the formation of urea groups through the polymer structure. A initial assay to incorporate an antibacterial drug model is in progress for further evaluate of release profile by UV-vis technique. **Conclusion:** The polymer-based membrane was successfully obtained by the reaction of a polyetheramine and a isocyanate phase, and demonstrated hydrogel characteristics by swelling assays.

Keywords: polyetheramine, flexible, transparent, swelling.

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SYNTHESIS AND CHARACTERIZATION OF POLYMERIC NANOGELS CONJUGATED WITH AMPHOTERICIN B APPLIED AS ANTIFUNGAL MATERIALS

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Purpose: The objective of the research was to synthesize and characterize polymeric nanogels based on epoxide-amine and evaluate the antimicrobial action. **Methods:** Synthesis of polymeric nanogels was based on reaction between an epoxide phase with a polyetheramine. Monomers were solubilized in deionized water, heated and diluted, followed by pH adjustment via a dialysis membrane. The characterizations of pure nanogel and those incorporated with amphotericin B (AmB) were carried out using DLS equipment to measure hydrodynamic diameter, polydispersity index and Zeta Potential. In the analysis of size and morphology, Transmission Electron Microscopy was used, in addition, Ultraviolet-Visible Spectroscopy evaluated light absorption of AmB molecules. For Minimum Inhibitory Concentration (MIC), the nanogels were tested against the fungi *Candida albicans* and *Candida glabrata*. Serial dilutions of pure nanogel and with AmB were prepared and incubated with fungal inocula. The MIC reading was performed with resazurin for qualitative tests and Colony Forming Units (CFU/mL) counts for quantitative tests. **Results:** The nanogel obtained favorable physicochemical characteristics for implementation in fungi, with possible interactions with AmB. Microdilutions with pure nanogel did not inhibit fungal growth. The nanogel incorporated with AmB proved to be more efficient in combating fungi than the pure amphotericin B solution, decreasing the MIC significantly. **Conclusion:** The synthesized and characterized polymeric system, when conjugated to amphotericin B, presents a carrier function and gradual release of the drug, allowing the antibiotic effect to be extended or the drug concentration to be reduced, while still being effective.

Keywords: characterization, biological activities, stability, polyetheramine, antifungal.

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POLYMERIC NANOGELS OBTAINED BY CLICK REACTION TO ENHANCE THE SYNERGISTIC EFFECT OF Fe AND Zn ON CUCUMBER SEED PRIMING IN AGRICULTURE

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Purpose: The aim of this study was to utilize polymeric nanogels loaded with micronutrients to enhance cucumber seed germination in agriculture. **Method:** Nanogels were synthesized through a one-step click reaction, which entailed the heterogeneous polymerization of a linear polyetheramine (Jeffamine ED-600, Mw= 500g/mol) and a bis-epoxide (Mw= 500. The reaction took place in an aqueous medium, with the monomers dissolved separately. After one hour of stirring at room temperature, the monomer solutions were mixed and allowed to react for an additional hour before further use. Micronutrients Fe and Zn were impregnated during synthesis. Physicochemical characterization included DLS, zeta potential (ZP), μ-XRF, and TEM. Biological assays were conducted to assess cytotoxicity. **Results:** The nanogels effectively loaded Fe and/or Zn salts, exhibiting controlled release. TEM and DLS analyses indicated nanogels with a hydrodynamic diameter of 30 nm to 60 nm. Zeta potential measurements revealed a negative surface charge at basic pH, shifting to neutral or slightly positive below pH 7. μ-XRF analysis showed nanogels could penetrate seed interiors, supplying moisture and releasing micronutrients over time, facilitating germination. Biological assays confirmed nanogels' non-toxicity to both animal cells and cucumber seeds. **Conclusions:** Application of these nanogels to cucumber seeds resulted in significant germination improvements. Their non-toxic nature suggests considerable potential for agricultural use.

Keywords: polymeric nanogels, click reactions, seed priming, nanocarriers

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TREATMENT OF SEEDS WITH POLYMERIC NANOPARTICLES EMBEDDED WITH DIFFERENT SOURCES OF ZINC FOR SUSTAINABLE AGRICULTURE

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Purpose: The aim of this study was to evaluate the influence of a synthesis of polymeric nanoparticles embedded with different zinc sources for sustainable agriculture. **Methods:** Three experiments were conducted with cucumber seeds, and in all three, the seeds underwent nano-priming. The sources of zinc were Zn-EDTA and $ZnSO_4$. The first experiment involved sowed the seeds in Petri dishes, where 10 cucumber seeds were treated with each treatment, and respective controls with H_2O were also conducted to establish results. In the second experiment, planting was done in sand with nine seeds and their respective controls. Lastly, the third experiment involved the hydroponic method, where the seeds were first germinated in sand until they reached a significant size to be transferred to the hydroponic buckets, with four seeds for each treatment. **Results:** In the experiments, it was shown that both sources of zinc significantly promoted root growth in the seeds, while stem growth remained stable. By using a nanogel formulation containing Zn-EDTA resulted in greater growth compared to nanogel embedded with $ZnSO_4$. **Conclusion:** By applying nano-priming to a seed with this nanostructured solution and the mentioned zinc sources, there is a significant improvement in root dimensions, which, in practice, will result in greater nutrient absorption from the substrate and also enhance the leaves, thereby increasing the plant's light-capturing capacity. This would improve the growth rate and overall health of the plant.

Keywords: nano-priming, zinc sources, growth.

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RESPONSE OF CUCUMBER LEAVES TO IRON DEFICIENCY: IMAGE CHANGES IN CHLOROPHYLL AND A DETAILED PROTOCOL

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Purpose: Iron plays an essential role in various plant metabolic processes. It regulates processes such as photosynthesis, nitrogen metabolism, chlorophyll synthesis and respiration. About 75% of the iron in the leaf is found in chloroplasts, so its deficiency greatly affects photosynthesis. The present work presents a detailed protocol for the induction of iron deficiency in cucumber plants. **Methods:** The study was carried out in a hydroponics system regulating all aspects that are considered important for plant growth. It was sought to evaluate the deficiency and understand the symptoms presented by the plant in order to arrive at the practice of recovery of the nutrient, being controlled by means of nutrient solution with previously established macro and micronutrient concentrations. **Results:** Iron deficiency is more observed in young leaves due to the difficult transport of the nutrient between the plant tissues, initially turning yellow and reaching the pale stage, with the metabolism being affected impairing chlorophyll synthesis and preventing healthy growth and development. Chlorosis, understood as the lack of chlorophyll production in the leaf, was the symptom widely evaluated, where it was possible to analyze the indices of chlorophyll a/b, anthocyanins and the quantum efficiency of PSII (Fv/Fm) in deficient and healthy plants. **Conclusion:** It can be understood in the end that iron deficiency in plants causes great disturbance to photosynthesis, harming plant tissues, and this work contributed to the elaboration of the protocol for induction and evaluation of symptoms of iron deficiency in cucumber plants under hydroponic cultivation.

Keywords: Hydroponic system, Iron deficiency, Cucumis sativus, chlorosis.

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SYNTHESIS AND CHARACTERIZATION OF AMINE-EPOXIDE GEL CONTAINING ZN AS NUTRIENT FOR AGRICULTURAL PURPOSES

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Purpose: Evaluate the formatin of amine-epoxide gel particles by "click chemistry" reaction. After that, incorporate Zn ion during the formation of amine-epoxide particles. **Methods:** Jeffamina ED-2003, Jeffamina T-403 and a Diepoxide were used in the synthesis. Their proportions were, respectively, 0.408g, 0.09g and 0.102g, totaling 0.6g of polymer. After this, the solution is filled with 4mL of water, thus obtaining 15% polymer concentration, and placed under agitation to dissolve and form the pre-polymer in the water bath at 65ºC for 15 minutes, subsequently being dispersed in a larger container with 56mL of water, so that the nanogels continue the polymerization and formation process. Finally, the solution is left in a water bath at 65ºC for 30 minutes. The final formulation has a pH value of 9. For application in plants, a pH of 5.5 to 6.5 is necessary, therefore, the 1 M HCl solution was used, until reaching pH ~6. A desired mass of Zn nutrient was embedded during the synthesis process. **Results:** So far, only characterization and stability results have been obtained. It was possible to notice that when acidifying the sample, the size of the particles and their number of clusters remained, with a size of around 100nm, but in the Zeta Potential there was an inversion of values (-16mV not acidified to +10mV acidified). **Conclusion:** the formulation demonstrated spherical particles with size of ~ 100nm evaluated by TEM and DLS techniques. The amine-epoxide gel was not toxic when applied in soybean seeds for germination assays.

Keywords: spherical particles, nanogel, polyether PEO, stability.

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EVALUATION OF INHIBITORS OF THE TRANS-SIALIDASE ENZYME FROM *Trypanosoma cruzi*

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Purpose: Aiming to advance in the discovery of selective inhibitors of trans-sialidase of *Trypanosoma cruzi* (TcTS), a series of sialic acid derivatives linked by 1,2,3-triazole was evaluated against the parasite trypomastigote and amastigote forms of *T. cruzi.* **Methods:** Parasites were maintained in RPMI 1640 medium and dose–response relationships were established following exposure of trypomastigote or amastigote forms to compounds *in vitro* after 24 and 48 h. The trypanocidal activity against trypomastigote and amastigote forms were determined by counted of live parasites in Neubauer camera or evaluated the number of amastigotes inside each infected cells, respectively using a light microscopy. The cytotoxicity was determined using the XTT assay in LLC-MK2 cell line. **Results:** The results demonstrated the effectiveness of compounds 3 and 10 against the trypomastigote, with IC_{50} values (50% Inhibitory Concentration) of 31.95 and 10.60 µM at 48 h, however to amastigote forms the compounds did not show activity. Also, the cytotoxicity demonstrated that compounds 3 and 10 showed CC_{50} values (50% Cytotoxic Concentration) at concentrations higher than 300 µM at 48h. **Conclusion:** The results obtained in this study show the efficacy of inhibitors of trans-sialidase against the parasites of *T. cruzi in vitro*.

Keywords: inhibitor, trans-sialidase, *Trypanosoma cruzi*.

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DEVELOPMENT AND VALIDATION OF HPLC ANALYTICAL METHOD TO QUANTIFY AGATHISFLAVONE IN *Anacardium occidentale* LEAVES CRUDE EXTRACT.

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Purpose: This study aimed to develop and validate an analytical method using high-performance liquid chromatography coupled with a diode array detector (HPLC-DAD) for quantifying agathisflavone in *Anacardium occidentale*. **Methods:** The biflavonoid agastiflavone, used as the standard compound in this study, was purified by liquid-liquid partition, solid phase extraction and Sephadex LH-20 column using methanol. The HPLC analysis was performed on a Luna ODS Phenomenex column in a gradient mode, using water and acetonitrile. The method was validated according to the guidelines of the Brazilian Health Surveillance Agency (ANVISA). **Results:** The selectivity ensured the identification and peak purity, with a purity of 0.999 during the analysis of the crude extract. The calibration curve demonstrated linearity in the concentration range of 50 to 2 µg/mL. The method provided recoveries of 111.6% at the concentration than 5 µg/mL, with RSDs lower of 5%. **Conclusion:** The method proved to be selective, linear, and accurate, enabling the quantification of the chemical marker in *A. occidentale*.

Keywords: Agathisflavone, Anacardiaceae, *Anacardium*, HPLC, validation.

Acknowledgments: FAPESP, CAPES and CNPq.

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MEDICINAL PLANTS MANUAL

Maria Paula Moreira Tahan[1]*, Naiara Nazaré de Piza[1], Alessandra Marieli Vacari[1], Ana Helena Januário[1], Fernanda Faleiros de Almeida Oliveira[1], Gilson Silverio da Silva[1], Patrícia Mendonça Pauletti[1] e Márcio Luís Andrade e Silva[1].

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Purpose: This work aimed to create the second volume of the manual presenting 10 species of medicinal plants cultivated in the medicinal garden of the project Implantation of Medicinal Plants Garden at the University of Franca, aiming to complement the activities around the cultivation of medicinal plants, of healthy eating habits and environmental education. **Methods:** The method used to develop this manual involved undergraduate students, seeking to encourage research and extension in the field of medicinal plants. Its content adds important and clarifying information, with simple and accessible language to the population on how to acquire medicinal plants, their recognition, their cultivation, collection, drying, storage, preparation and use in order to obtain the expected action. Obtaining such knowledge was done through scientific articles, websites and books. **Results:** All these experiments with plants had successes and failures, as plants were used inappropriately, not taking into account possible toxic effects. In addition to planting and collection being done improperly, which could lead to the extinction of the plant. Thus, the production of this manual, through studies and research, contributed to the effective and safe use of medicinal plants by the population. **Conclusion:** The history of the use of medicinal plants has shown that they are part of human evolution and were the first therapeutic resources used by people, combined with the fact that Brazil has great biodiversity and also has considerable social inequality, the opportunity to seeking a cure in a more economical way through the use of medicinal plants is essential.

Keywords: medicinal plants, garden, medicinal plants manual.

Acknowledgments: CAPES, CNPq, FAPESP and University of Franca.

ANTIMICROBIAL ACTIVITY OF DITERPENES ISOLATED FROM BRAZILIAN BROWN PROPOLIS AGAINST ATCC AND CLINICALLY MULTIDRUG-RESISTANT BACTERIA

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Purpose: The aim of the present study was to investigate the antimicrobial activity of diterpenes isolated from Brazilian brown propolis against ATCC and clinically multidrug-resistant bacteria. **Methods:** The minimal inhibition concentration (MIC) and minimal bactericidal concentration (MBC) values were investigated against a representative panel of ATCC and clinically isolated multidrug-resistant bacteria. MIC and MBC of diterpenes were determined by microbroth dilution assay on 96-well plates according to Clinical and Laboratory Standards Institute (CLSI). The inoculum of microorganisms was prepared from 12 h broth cultures and suspensions were adjusted to 0.5 McFarland standard turbidity. Samples were dissolved in DMSO at 2.5% (v/v) and each well contained 50 µl of samples diluted two-fold serially in RPMI 1640 was inoculated with suspension of bacteria at final concentrations of 5 × 105 CFU/ml. After incubation at 35˚C for 24 h the MIC and MBC were determined. DMSO solution was used to negative control of solvent activity. Vancomycin and imipenem were used as positive reference standard. **Results:** From the 10 diterpenes isolated, abietic acid, dehydroabietic acid, *trans*-communic acid, and *cis*-communic acid showed very promising MIC and MBC values against a great number of multidrug-resistant bacteria (values ranging from 2.0 to 6.0 µg.mL-1). **Conclusion:** The results described here pointed out these four diterpenes as natural prototypes for further medicinal chemical studies against bacteria responsible for human diseases.

Keywords: Brazilian brown propolis, diterpenes, multidrug-resistant bacteria.

Acknowledgments: FAPESP, CAPES and CNPq.

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IN VITRO EVALUATION OF EXTRACTS OBTAINED FROM *ASPIDOSPERMA PARVIFOLIUM* AGAINST TWO SPECIES OF *LEISHMANIA*

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Purpose: The aim of this work was to evaluate the leishmanicidal activity of crude extracts obtained from *Aspidosperma parvifolium* (Apocynacae) against two species of *Leishmania* (*Leishmania (L.) amazonenses* and *Leishmania infantum*. **Methods:** Parts of the plant of *A. parvifolium* (leaves, bark, branches) were collected from a specimen located at Fazenda Monjolos, in the city of Sacramento-MG. The collected parts were dried in a circulating air oven (40ºC) and pulverized in a knife mill. This material was submitted to successive extractions with ethanol. After drying, 66.7g, 13.3g, 5.8g of crude extracts were obtained, respectively. To evaluate the leishmanicidal activities, the samples were submitted to an *in vitro* assay against the promastigote forms of *L. amazonensis* (MHOM/BR/PH8) and *L. infantum* (MHOM/BR/1972/LD). **Results:** The best results of the leishmanicidal activity against *L. amazonensis* were obtained with the extract of leaves that presented IC50 of 37.09 µg/mL after 48h of incubation. On the other hand, the best results against *L. infantum* were obtained with the extracts of leaves and bark that presented IC_{50} of 9.95µg/mL and 19.46 µg/mL after 24h of incubation, respectively. **Conclusion:** In view of the results, the extracts will be fractionated in order to isolate their chemical constituents.

Keywords: Aspidosperma parvifolium, Leishmania, leishmanicidal activity.

CEUA: 3830250919

Acknowledgments: CNPq, FAPESP and CAPES.

CHEMICAL INVESTIGATION OF *Dolichandra unguis-cati*

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Purpose: This research aimed to investigate the phytochemical profile of *Dolichandra unguis-cati* (L.) L.G.Lohmann (Bignoniaceae). **Methods:** The leaves were dehydrated, yielding 620.4 g of dried material. This material was then powdered and extracted with ethanol (1.25 L x 3) by maceration. The resulting ethanolic solution was filtered and concentrated under reduced pressure, producing 29 g of crude extract. Subsequently, 16 g of the crude extract underwent liquid-liquid partitioning. The partition involved mixing the crude extract with methanol and water (2:8 v/v, 500 mL) and extracting it with hexane and ethyl acetate. After drying the solvents, the process resulted in three fractions: the hexane fraction (1.5 g), the EtOAc fraction (2.6 g), and the hydromethanolic fraction (12.4 g). All the fractions were analyzed using high-performance liquid chromatography (HPLC) and thin-layer chromatography (TLC). **Results:** The presence of secondary metabolites was confirmed using the HPLC and TLC analyses, which revealed the presence of phenolic compounds and terpenes. **Conclusion:** The obtained extract and fractions will be further analyzed for their antifungal potential, and subjected to purification process.

Keywords: Bignoniaceae, *Dolichandra*, HPLC.

Acknowledgments: FAPESP, CAPES and CNPq.

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CLEISHMANICIDAL EFFECT OF ESSENTIAL OILS OF *Schinus molle* AND *Cinnamomum cassia* ON PROMASTIGOTE FORMS OF *Leishmania amazonensis*

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Purpose: The present study investigated the leishmanicidal effect of essential oils extracted from the species *Schinus molle* (SM) and *Cinnamomum cassia* (CC) on promastigote forms of *Leishmania amazonensis*. **Methods:** Dose–response relationships were established following exposure of promastigote forms in different samples, including oils extracted from oven-dried leaves (SMFE) and fresh leaves (SMFN) of SM, as well as from the bark of CC (CCC). Additionally, three combinations of essential oils were analyzed: 75% SM and 25% CC (CCSM1), 50% SM and 50% CC (CCSM2), and 25% SM and 75% CC (CCSM3). The leishmanicidal activity was determined by counted of live parasites in Neubauer camera. **Results:** In the *in vitro* screening, the SMFN essential oil demonstrated the highest activity, followed by the CCC essential oil, with an inhibitory concentration (IC_{50}) value of 9.49 µg/mL at 48 h. On the other hand, the combination of oils resulted in the CCSM1 oil being the most active among all evaluated samples, with an IC_{50} value of 1.61 µg/mL. **Conclusion:** The results obtained highlight a notable leishmanicidal effect against the promastigote forms of *L. amazonensis* and emphasize the importance of conducting additional in vitro studies to evaluate the cytotoxic effects of these essential oils on mammalian cells, as well as their antiparasitic potential on the amastigote forms of this protozoan, along with investigating their possible mechanisms of action.

Keywords: *Cinnamomum cassia*, essential oil, *in vitro*, leishmanicidal, *Schinus molle.*

Approval CEPE/CEUA: 3830250919.

Acknowledgments: FAPESP, CAPES and CNPq.

UNDERSTANDING THE LIFE CYCLE OF THE PARASITE *Schistosoma mansoni*

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Purpose: Schistosomiasis is a neglected tropical disease caused by parasites of the genus *Schistosoma*, affecting millions of people in tropical and subtropical regions. The goal of this booklet is to disseminate knowledge to reduce the incidence of schistosomiasis and promote healthier communities through awareness and preventive practices. **Methods:** The booklet uses illustrations to simplify complex information, making it easily understandable. It includes activities for children, making education about the disease more accessible and engaging for the whole family. The Canva website was used to create the illustrations. Additionally, the research and parasitology laboratory (LAPPA) was utilized for detailed observation and learning about the parasite's life cycle. **Results:** The booklet is expected to be easily understood by people of all ages and educational levels, effectively disseminating knowledge about schistosomiasis and its life cycle. **Conclusion:** This booklet is part of a growing set of visual materials aimed at increasing awareness about schistosomiasis. Through education and the dissemination of preventive practices, we hope to contribute to reducing the incidence of this disease, thereby promoting more informed and healthier communities.

Keywords: Snails, Community and Schistosomiasis.

Acknowledgments: CAPES (financial code 001) and CNPq.

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COPPER NANOPARTICLES AS A NOVEL SOLUTION FOR RUST DISEASE CONTROL IN COFFEE CULTIVATION

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Purpose: The experiment aims to evaluate and quantify the control of rust infection severity in coffee plants (*Hemileia vastatrix*) using a metallic copper nanoparticles base. **Methods:** The randomized block design method was employed for the evaluation, where 225 coffee plants of the Catuai99 variety were divided into plots of 9 individuals, forming 5 treatments and 5 repetitions. The control treatment (negative control) received an application of water and Tween 80 (0.05%). The commercial product Cuprazol® 380H was applied at a concentration of 2500 ppm as a positive control. The other treatments consisted of concentrations of 750, 2250, and 3750 ppm of the CuNPs solution. Each plot was evaluated by observing and quantifying the leaf area affected by the fungus on 25 randomly selected leaves from each side and positioned in the middle third of the plants, considering infection levels from 0 to 50%. **Results:** The control treatment (water + Tween) showed 2.3% of the affected area, while the Cuprazol® 380H treatment showed 1.63%. However, in the treatments using CuNPs nanoparticles at concentrations of 750, 2250, and 3750 ppm, a severity of 1.73%, 1.53%, and 1.18% was observed, respectively. **Conclusion:** The concentrations of 2250 and 3750 ppm of CuNPs provided better control of rust severity compared to the commercial product. This fact can be attributed to the size of the nanoparticles.

Keywords: Catuai 99, severity, copper, sustainability in agriculture.

Acknowledgments: UNIFRAN, PIBIC, CAPES (financial code 001) and CNPq.

COPPER NANOPARTICLES: NOVEL STRATEGIES FOR COMBATTING COFFEE RUST

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Purpose: The objective of this study is to investigate the effect of copper nanoparticles (CuNPs) applications on the control and incidence of rust in coffee crops. **Methods:** Five types of treatments were conducted: TR1, TR2, TR3, TR4, and TR5. All treatments were applied using a syrup consisting of 20 liters of water and Tween 80, referred to as the base syrup. TR1 consisted solely of the base syrup, while TR2 involved the base syrup with an addition of 50 mL of the commercial product Cuprazol 380HC at 2500 ppm. TR3 utilized the base syrup with the inclusion of CuNPs at 750 ppm, TR4 involved the base syrup with CuNPs at 2250 ppm, and TR5 entailed the base syrup with CuNPs at 3750 ppm. The evaluation of all treatments was conducted every 15 days with specific reports. The application was performed using a Brudden SS-20B electric backpack pump on the Café Catuai 99 cultivar, with regulated pump flow pressure, and the duration of each application in the treatments was recorded. **Results:** The observed incidence of rust was as follows: TR1 exhibited 7.87%, TR2 had 6.27%, TR3 showed 7.33%, TR4 recorded 2.60%, and TR5 presented 5.33%. **Conclusion:** This two-year study demonstrated promising results for TR4 treatment in controlling rust incidence compared to the commercial product. Furthermore, there was no residue remaining from the product, and visible growth in the plants was observed, with the treatments having the following results.

Keywords: Coffee, rust, incidence, copper nano particles.

Acknowledgments: Unifran, NanoBoost, FAPESP, CAPES e CNPq.

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TITANOSILICATE-COATED GLASS SPHERES FOR ORGANIC POLLUTANT REMOVAL VIA THE PACKED COLUMN METHOD

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Purpose: In the pursuit of effective water purification methods, developing advanced materials to remove organic pollutants is crucial. This study aims to create glass spheres coated with titanosilicate for water purification and assess their potential as packing material for colums. **Methods:** Titanosilicate was synthesized in a beaker containing 5.84 mL of ethyl alcohol, 1.3 mL of acetylacetone (ACAC), 3.72 mL of titanium isopropoxide (IPTi), 2.79 mL of tetraethyl orthosilicate (TEOS), and 0.25 mL of HCl, under constant stirring. The coating occurred during the gel phase, where the glass spheres were immersed for 5 minutes and dried for 3 minutes, this process repeated three times. Four conditions of glass spheres were tested: untreated, sanded without acid treatment, untreated with acid treatment, and sanded with acid treatment. The spheres of each type were heat-treated at 500°C for 6 hours. The remaining xerogel was dried in an oven for 24 hours, then ground into a fine powder using an agate mortar. Half of the powder was calcined in a muffle furnace at 500°C for 6 hours. The samples were characterized using optical microscopy, infrared spectroscopy, and X-ray diffraction. **Results:** Analytical techniques confirmed the formation of a titanosilicate matrix via the sol-gel process. Optical microscopy revealed that sanded spheres retained more coating material. Additionally, heat treatment at 500°C did not cause material loss from the sphere surfaces. **Conclusion:** The spheres pre-treated by sanding showed more homogeneous coatings. However, further studies are required to determine the stability and thickness of the coating.

Keywords: glass spheres, titanium silicate, adsorption, photodegradation, sol-gel.

Acknowledgments: FAPESP, CAPES and CNPq.

RUTHENIUM (II) COMPLEX WITH 2-MERCAPTOTHIAZOLINE LIGAND EXHIBITS ANTIMELANOMA ACTIVITY *IN VITRO*

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Purpose: Melanoma is the most aggressive and lethal type of skin cancer due to its high metastatic potential and low response rate to existing treatment modalities. Therefore, new drug prototypes are being studied to address these challenges. Among these prototypes, metallodrugs like ruthenium are promising alternatives due to their antitumor properties and low systemic toxicity. This study aimed to evaluate the effect of the ruthenium complex with 2-mercaptothiazoline ligand (RuMTZ) on the expression of cleaved caspase 3 and γH2AX proteins in human (A-375) and murine (B16-F10) melanoma cells. **Methods:** The A-375 and B16-F10 cells were cultured and treated with 8.6 and 2.4 μM RuMTZ respectively, for 24 hours. Control groups received dimethyl sulfoxide (DMSO 1%). Cells were lysed and quantified to obtain 30 μg per sample. Electrophoresis was performed, and the membrane was incubated overnight at 4°C with primary antibodies for cleaved caspase 3 and γH2AX, followed by HRP Goat anti-rabbit IgG secondary antibody for one hour at room temperature. The β-actin antibody was used as a control. Protein bands were identified using Immobilon Western Chemiluminescent HRP substrate and analyzed with ImageJ software. **Results:** The results showed increased expression of cleaved caspase 3, an indicator of apoptosis, and γH2AX, an indicator of double-strand DNA damage, in human and murine melanoma cell lines treated with RuMTZ. **Conclusion:** These findings indicate that the antimelanoma activity of RuMTZ is partially related to the induction of apoptosis and DNA damage. Therefore, RuMTZ exhibited promising antineoplastic activity *in vitro* against melanoma.

Keywords: Caspase-3, γH2AX, 2-mercaptothiazoline, Western blot.

Acknowledgments: CNPq, FAPESP and CAPES.

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INVESTIGATING THE IMPACT OF SOLAMARGINE ON GLIOBLASTOMA CELL LINES: CYTOTOXICITY, CLONOGENICITY, AND MORPHOLOGICAL INSIGHTS

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Purpose: This study aimed to investigate the influence of the glycoalkaloid solamargine (SM) on proliferation, clonogenicity, and morphology of human glioblastoma (GB) cell lines (U-87MG, U-251MG, T98G, KNS-42) and non-tumoral human astrocytes. **Methods:** Cytotoxicity was evaluated using the XTT assay under normoxic and hypoxic conditions. Cells were exposed to varying concentrations of SM for 24, 48, and 72 hours, and IC_{50} values were determined through nonlinear regression. SM's antiproliferative potential was assessed using the clonogenic assay, whose cells were treated for 24 hours and allowed to form colonies over subsequent cycles. Morphological changes were monitored by cell imaging at 5 minutes, 1 hour and 24 hours post-treatment. **Results:** Under normoxic conditions, SM displayed significant cytotoxic effects, with IC_{50} ranging from 5.04 to 6.95 μM after 72 hours, showing a dose- and time-dependent response. Considering 24 hours of treatment, the IC_{50} observed in hypoxic conditions were lower (6.75 to 8.92 μM) than those obtained under normoxia (7.68 to 9.53 μM). The clonogenic assay indicated SM's pronounced antiproliferative effects across all cell lines, evident from reduced colony formation at concentrations ≥ 2.5 μM after 24 hours of treatment. Morphological changes, including cellular contraction and filopodia formation, were observed in GB cell lines exposed to 15 and 20 μM of SM within minutes to hours. **Conclusion:** SM effectively inhibited cell viability and clonogenic potential in GB cell lines, accompanied by significant morphological alterations. These findings highlight SM's promise as a therapeutic candidate for GB, warranting further investigation in both preclinical and clinical settings.

Keywords: Hypoxia, antiproliferative, central nervous system tumor.

Acknowledgments: CNPq, FAPESP and CAPES.

EVALUATION OF ACUTE ORAL TOXICITY OF GREEN COFFEE OIL (CONDIRE KWMAX®) IN WISTAR HANNOVER RATS

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Purpose: This study aimed to evaluate the acute oral toxicity of green fruit oil (Condire KWmax®) derived from *Coffea arabica* in Wistar Hannover rats. **Methods:** The study followed OECD guideline 423 (2002)*. Eight young female Wistar Hannover rats were divided into two groups: four received a single oral dose of 2000 mg/kg of Condire KWmax®, and four served as negative controls. The rats were monitored for 14 days. Parameters analyzed included mortality, systemic toxicity, necropsy, body and tissue mass, water intake, and biochemical tests such as triglycerides, creatinine, alanine transaminase, and total cholesterol. **Results:** Administration of 2000 mg/kg of Condire KWmax® did not result in any signs of toxicity or mortality over the 14-day period. There were no significant differences in weight gain between the treated and control groups. However, there was a statistically significant difference in average daily water consumption between the groups. Necropsy revealed no pathological macroscopic signs, and the relative weights of the heart, liver, lungs, kidneys, and spleen showed no significant differences. **Conclusion:** Under the experimental conditions used, Condire KWmax® demonstrated no acute oral toxicity in Wistar Hannover rats.

*OECD (2002), *Test No. 423: Acute Oral Toxicity - Acute Toxic Class Method,* OECD Guidelines for the Testing of Chemicals, Section 4, OECD Publishing, Paris, https://doi.org/10.1787/9789264071001-en

Keywords: *Coffea arabica,* natural products, systemic toxicity.

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EVALUATION OF THE BIOLOGICAL EFFECTS OF AMTAC – 22, A SYNTHETIC SPIRO-ACRIDINE COMPOUND, ON MELANOMA CELLS

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Purpose: The present study aimed to evaluate the antineoplastic effect of a synthetic spiro-acridine compound, AMTAC-22, on melanoma cells. To this end, cytotoxicity, clonogenicity, apoptosis and cell cycle were considered as analysis parameters. Methods: The melanoma cell lines used in the study were A-375 (human) and B16-F10 (murine), and a non-tumor cell line (HaCat, immortalized human keratinocytes) was employed for comparative purposes. For cytotoxic evaluation by XTT assay, cells were exposed to different concentrations of AMTAC-22 for 48 hours in order to obtain the concentration that inhibits 50% of cell viability (IC_{50}) and the selectivity index (SI). In clonogenic efficiency (CE) assay, cells were exposed for 48 hours to AMTAC-22 at concentrations varying from 0.3 to 5 µM. Apoptosis and cell cycle analyzes were performed by flow cytometry, whose cells were treated with 4.0 µM (A-375) and 12.9 µM (B16-F10) of AMTAC-22. Results: AMTAC-22 revealed greater cytotoxicity in human melanoma (IC_{50}= 4.0 µM-XTT assay; IC_{50}=1.9 µM-CE assay), with SI equivalent to 3.27, than in murine melanoma (IC_{50}= 12.9 µM-XTT assay; IC_{50}= 3.8 µM-CE assay). No selective cytotoxic action of AMTAC-22 was observed on murine melanoma cells. In the investigation of cell death, AMTAC-22 induced 60% and 80% of apoptosis in B16-F10 and in A-375 cells, respectively. Furthermore, cells were arrested from the S phase of the cell cycle when treated with AMTAC-22. Conclusion: AMTAC-22 proved to be a promising anti-melanoma agent, under the experimental conditions used.

Keywords: Antineoplastic effect, cytotoxicity, melanoma.

Acknowledgments: CNPq, FAPESP and CAPES.

SYNTHESIS AND CARACTERIZATION OF ZINC – BASED METAL-ORGANIC FRAMEWORKS USING TEREPHTHALIC ACID AND DIMETHYLFORMAMIDE

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Purpose: The objective of this study was to synthesize and characterize metal-organic frameworks (MOFs) based on zinc, terephthalic acid, and dimethylformamide (DMF). **Methods:** A solution of terephthalic acid (2 mmol, 0.324 g) in DMF (8 mL) was added to another solution of ZnCl2 (2 mmol, 0.582 g) in DMF (2 mL) under stirring. The mixture was then transferred to the Ethos Easy microwave reactor - Millestone at 1200W and 140°C, and heated in intervals of 4 hours for a total reaction time of 24 hours. MOF formation occurred after 16 hours of reaction (resulting in a white precipitate). The material was washed with DMF, ethanol, and water. **Results:** The solid formed was analyzed at each washing step by X-ray Diffraction (XRD), showing impurity peaks during the initial washes with DMF and ethanol, but also characteristic reflections of the Zn metal-organic framework with peaks at 10, 12, 14, 18, 21, and 25º in 2θ attributed to the structure obtained from the interaction between carboxylate groups and Zn2+ ions, forming a continuous 2-D network parallel to the 040 planes, with a DMF molecule directly bound to Zn2+. These results are consistent with the literature. **Conclusion:** The synthesis and characterization of the material were confirmed by XRD, confirming the formation of Zn-terephthalic acid-DMF MOF. Compared to traditional solvothermal methods, microwave-assisted synthesis provided an 8-hour reaction time advantage. Water washing demonstrated stability and effective impurity removal. Further studies will focus on the photocatalytic application of this solid in organic pollutant degradation.

Keywords: Metal-organic frameworks, zinc, terephthalic acid, dimethylformamide.

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STUDY OF THE ANALGESIC AND ANTI-INFLAMMATORY ACTIVITIES OF PROPOLIS

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Purpose: The present work evaluated the potential on pain and inflammation of extracts and fractions of Propolis Vermelha de Alagoas. **Methods:** For this, pharmacological nociception assays such as acetic acid 0,6% induced abdominal contortion and as for anti-inflammatory activity, paw edema induced by carrageenan, dextran and histamine was performed. **Results:** The analgesic potential is observed in the abdominal writhing test with a reduction of 55.3%, 55.9% and 71.3% (3, 10 and 30mg/kg respectively) when compared to the negative control. In the anti- inflammatory activity, the three extracts showed a result in paw edema modulated by carrageenan and crude and apolar extract of red propolis in the paw edema modulated by histamine. It was also identified potential on cellular infiltrate in the inflamed region of paw edema in carrageenan. Hepatic, renal and hematological toxicity were not observed. **Conclusions:** The results presented demonstrated the antinociceptive and anti- inflammatory actions of Brazilian red propolis, thus suggesting a possible modulation of the nociceptive response pathways and thus reducing the nociception process. However, there is a need for additional studies in order to assess the mechanisms involved in these effects, as well as further studies to assess their cytotoxic potential.

Keywords: Propolis, Red propolis, anagesic and antiinflammatory activity.

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CATION RECOGNITION CONTROLLED BY PROTONATION OR CHEMICAL REDUCTION

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Purpose: To control biochemical processes, non-covalent interactions involving cations are activated by protons or electrons. In the present study, the bonding situation between carboxylic acid or ferrocene functionalized crown ether derivatives and cations (Li^+, Na^+ or K^+) has been elucidated and, mainly, tuned by the substitution of H atoms by electron donor ($-NH_2$) or acceptor ($-NO_2$) groups. **Methods:** Calculations were performed at the DFT level of theory. The chemical bonds were studied using the energy decomposition analysis in conjunction with the natural orbitals for chemical valence methodology. The charge distribution was calculated using the Voronoi deformation density method. The electrostatic interactions have been elucidated by analyzing the molecular electrostatic potential surfaces. The topological analysis of the electron density was performed using the quantum theory of atoms in molecules. **Results:** The deprotonation of the carboxyl groups improves the interaction with the cations through more favorable electrostatic O···cation interaction. Reducing the ferrocene structures favors cationic recognition supported by a less unfavorable iron···cation binding. The receptors preferably interact with smaller cations because of more attractive electrostatic and orbital O···cation interactions. The presence of electron donor or acceptor groups in the carboxylic acid-functionalized crown ethers promotes less attractive interactions with the cations. The $-H \rightarrow -NH_2$ substitution in the ferrocene framework favors the cationic recognition. **Conclusion:** This work has demonstrated how cation recognition can be improved by structural changes in carboxylic acid- or ferrocene-functionalized crown ethers. Furthermore, the carboxylic acid molecules appear to be better candidates for cation recognition than ferrocene derivatives.

Keywords: Cation recognition, non-covalent interactions, deprotonation.

Acknowledgments: FAPESP, CAPES and CNPq.

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NONTRONITE/TITANIA PHOTOCATALYSTS APPLIED IN THE DEGRADATION OF EMERGING ORGANIC POLLUTANTS THROUGH THE HETEROGENEOUS PHOTOCATALYSIS PROCESS

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Purpose: This study aimed to synthesize photoactive materials using nontronite clay as a support for the semiconductor and evaluate the degradation of organic pollutants, loratadine and diclofenac sodium, through heterogeneous photocatalysis. **Methods:** Nontronite clay was purified by dispersion and decantation, serving as a support in the synthesis for the semiconductor, titanium (IV) isopropoxide served as the semiconductor precursor, ethanol as the solvent and acetic acid as the stabilizing agent. The powder material was subjected to treatment temperatures of 400, 700, and 1000°C. Degradation kinetics were measured using photolysis and heterogeneous photocatalysis tests in a UV LED light reactor (λ=254nm, P=95W). The data were processed using the Langmuir-Hinshelwood model. **Results:** The material calcined at 400°C maintained the characteristic peaks of nontronite but with reduced crystallinity. At 700 and 1000°C, the nontronite structure collapsed, forming aluminum, silicon, and iron oxide, indicated by a color change from green to yellow due to the oxidation of Fe(II) to Fe(III). Anatase phase peaks appeared from 400°C and rutile phase from 700°C. Pharmaceuticals showed low stability to UV radiation, limited mineralization capacity, and produced potentially more toxic intermediates. The Non-TiO2-400°C semiconductor exhibited the best degradation profile, likely due to the crystalline phase of TiO_2 and changes in the clay structure. **Conclusion:** The synthesis efficiently immobilized the semiconductor in the clay, generating materials capable of producing hydroxyl radicals via heterogeneous photocatalysis. Non-TiO2-400ºC showed a better hydroxylation profile due to the anatase phase of TiO_2 and the lamellar structure of the clay, enhancing exposure to UV radiation.

Keywords: Sol-Gel, nontronite, sodium diclofenac, loratadine, heterogeneous photocatalysis.

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SYNTHESIS OF HYBRID PHOTOATIVES POROUS MEMBRANES FOR ENVIRONMENTAL REMEDIATION: CHITOSAN/PVAL/BENTONITE/ TITANIA/CHLOROPHYLL

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Purpose: Sensitize a hybrid Chlorophyll/TiO2/Bentonite material and synthesize microspheres and films with it testing in tebuthiuron. **Methods:** Chlorophyll was extracted from *Eruca sativa* with a 5:2 (v/m) ratio (solvent/material), yielding a concentrated extract that was separated, obtaining a solid percentage that was solubilized for application. The 0.5% (m/m) concentration was used as a reference. To make the hybrid materials chlorophyll was incorporated into 200 mL of ethanol, with 10 g of bentonite, 1 mL of acetic acid, and 2 mL of titanium isopropoxide. The resulting materials were suspended in 250 mL of acetic acid (v/v), 3% chitosan (m/v), and 1% PVAL (m/v). After 24 hours of mechanical stirring, it was dripped into 8% NaOH to synthesize microspheres and deposited in Petri dishes for the films. The materials were washed and subjected to adsorption tests in the dark, followed by photocatalysis tests in the visible spectrum using terephthalic acid, methylene blue, and the target pollutant. **Results:** Characterization confirmed the extraction of chlorophyll. UV-Vis spectroscopy of the solid material allowed for the assessment of chlorophyll incorporation into bentonite; the optimal adsorption range of the material by the substrate tends to remain between 0.3% and 0.5%. Beyond this concentration, a loss in the profile of red (417 nm) and blue (665 nm) bands occurred. Chlorophyll incorporation was further demonstrated through FTIR analysis. **Conclusion:** Both varieties of material were successfully obtained. Characterization demonstrates the material's photocatalytic properties, supporting further research on application.

Keywords: Photocatalysis, Bentonite, Chlorophyll/TiO2, Hybrid materials.

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ISOLATION OF COPALIC ACID FROM COPAIBA OILRESIN

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Purpose: The copaiba oil, extracted from the *Copaifera langsdorffii* trees, present most in tropical areas in Latin America and Western Africa is considered an oleoresin popular in medicine and pharmacological areas due to its antimicrobial, anti-inflammatory and antibacterial properties. The aim of this study is to isolate the copalic acid for study purposes, mostly synthetic. **Methods:** A sample (20 g) of the oil was incorporated on 27g of silica gel 60 and fractionated by Vacuum Liquid Chromatography (VLC). In this procedure, a glass column filled with 428g of silica gel 60 and 60H (1:1 proportion) was used. Column packaging was carried out with Hexane using a vacuum pump, as well as the column elution. The eluent used was a mixture of solvents (hexane/ethyl acetate) in crescent polarity gradient. **Results:** The copalic acid was present in the 1:1 and 4:6 fractions. Those fractions, divided in smaller portions, were submitted to Classical Column Chromatography (CC) to yield some pure copalic acid samples. This diterpene was characterized by Nuclear Magnetic Resonance (NMR), with the identification of the most characteristic signals, like the methyl hydrogen signals in δ 2,17; 0,87 and 0,68. Also the double bond hydrogens in δ 4,85 and 4,49 belong to the position 17 hydrogens and δ 5,68 belong to position 14 hydrogen were easily identified. **Conclusion:** The copalic acid was isolated and certainly identified, being now available to be used in procedures of our research group interests, such as amidation reactions study.

Keywords: copalic acid, copaiba oil, vacuum liquid chromatography.

Acknowledgments: FAPESP, CAPES and CNPq.

EFFECT OF SUPPLEMENTATION WITH STANDARDIZED GREEN PROPOLIS EXTRACT ON MICRONUCLEUS FREQUENCY IN HIGH-PERFORMANCE ATHLETES

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Introduction: The Standardized Green Propolis Extract (SGPE) has been widely investigated for its biological and therapeutic properties, especially its antioxidant effects. High-performance physical exercise increases oxidative stress, leading to higher DNA damage in athletes, evidenced by more frequent micronuclei (MN). This study evaluated SGPE supplementation on MN frequency in the oral mucosa cells of high-performance athletes. **Methods:** Eighty male street runners, aged 18-39, were included. Forty athletes received SGPE and forty a placebo for 14 days. MN frequency was analyzed using the cytokinesis-block micronucleus cytome assay in oral mucosa cells. Anthropometric measurements, including body mass index (BMI) and body composition, were performed using standardized techniques. Physical endurance was assessed through a 1600 m run and a bench press test. Buccal cells were collected to analyze MN frequency before and after supplementation. **Results:** Preliminary results from the analysis of MN frequency in 25 participants before SGPE supplementation showed a mean frequency of 7.6 ±5.3 MN/participant (median 6.0), higher than in the non-exposed healthy population. **Conclusion:** Preliminary results are inconclusive, and the analysis of MN frequency in other participants before and after supplementation is ongoing. Further investigation is needed to determine the effectiveness of SGPE in reducing MN frequency. By incorporating SGPE, the study aims to explore its potential benefits in mitigating oxidative stress-induced DNA damage in athletes. This ongoing research will provide valuable insights into the role of SGPE in athletic health and performance.

Keywords: green propolis, oxidative stress, physical exercise, micronucleus.

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ISOLATION OF KAURENOIC ACID FROM MIKANIA GLOMERATA FOR CHEMICAL TRANSFORMATIONS PURPOSES

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Purpose: The aim of this work is to produce semi-synthetic substances from the natural diterpene kaurenoic acid and evaluate the derivatives' activities against parasites such as Leishmania brasiliensis and *T*rypanosoma cruzi. **Methods:** The kaurenoic acid was isolated from Mikania glomerata using approximately 1.0 kg of the ground aerial parts of the plant. Dichloromethane was added to the plant material, and the mixture was subjected to ultrasound for 15 minutes. After filtering, the solvent was removed. This procedure was repeated three times, yielding 40g of the dichloromethane crude extract. This extract was then suspended in 550 ml of a MeOH/H_2O 9:1 (V/V) mixture and filtered. The soluble part was partitioned with hexane (5 x 450 ml) and dichloromethane (2 x 300 ml). Subsequently, the hexane fraction was subjected to vacuum liquid chromatography (VLC), incorporating the mass into 50g of silica gel 60. The main fraction containing kaurenoic acid was further purified using a classical chromatography column (CCC), successfully isolating the target diterpene (kaurenoic acid). **Results:** The isolation of kaurenoic acid from M. glomerata extract was successful, providing a considerable amount of starting material for chemical transformations, 300 mg. The purity of the kaurenoic acid sample is adequate for biological assays and reactional studies. The transformation processes have just begun, and we expect to obtain our first derivatives soon. **Conclusion:** The initial results indicate that this project is likely to yield promising results, though it is still in its early stages.

Keywords: kaurenoic acid, *Mikania glomerata*, semi-synthetic transformations.

Acknowledgments: FAPESP, CAPES and CNPq.

THE CONSTRUCTION OF MEANINGS TO CONFRONTING INTRAFAMILY VIOLENCE AGAINST CHILDREN IN THE SPEECH OF THE CHILD EDUCATION TEACHER

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Purpose: The aim of this study was to understand when intrafamily violence interferes with school activities and how the teacher identifies what is happening, depending on the children's attitudes and behaviors and especially their development in the classroom. In addition to identification, we seek to understand support needs and how to deal with this type of situation. **Methods:** We analyzed interviews with teachers published in a 2011 psychology work, when three teachers, who were already part of a training project, were interviewed. **Results:** Teachers show concern about preventing cases of intra-family violence, even though they often do not know how to act effectively within this context. However, it is possible to see that to some degree, there is a naturalization of violence, culturally rooted in society. **Conclusion:** Intrafamily violence can be present in all types of schools and in any school context. The meanings of violence are clear in the educational sphere, but the cultural naturalization of the problem and the maintenance of school traditionalism make preventive and combative actions against violence against children difficult.

Keywords: intrafamily violence, child education, teacher, discursive studies.

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RE-READINGS OF CLASSIC LITERATURE: DIALOGUES AND RE-SIGNIFICATIONS

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Purpose: This study aims to analyze how the retellings of "Snow White" dialogue with the classic narrative and the chronotope of production. Human beings have always sought to communicate in order to pass on information; before the emergence of writing, the form of communication used was oral. The classic narrative "Snow White" arose orally and has ancient origins, which is why the story has had so many adaptations over time in print and audiovisual media. This research analyzed two books and two films: "Snow White" (Brothers Grimm - 1812); "Poison" (Sarah Pinborough - 2013); "Snow White and the Seven Dwarfs" (Disney - 1937); and "Snow White and the Huntsman" (Universal Pictures - 2012). **Methods:** The bibliographical and qualitative research focuses on the concepts of dialogue and chronotope, on the works of Mikhail Bakhtin and his researchers in Brazil to analyze re-readings, and on the history of fairy tales. The analysis focuses on the observation of dialogues and adaptations according to the time and space of production. **Results:** The analyses show that the central theme of "Snow White" is maintained in the four retellings, but the behavior of the protagonist and the other characters involved is modified according to the production context. **Conclusion:** Adaptations generally have a dialog with the original work, at least at some point, due to the need for a reference for the new production. In addition, adaptations tend to change some characteristics according to the chronotope and target audience.

Keywords: Dialogues, re-readings, chronotope, Snow White, Bakhtin.

Acknowledgments: CAPES and CNPq.

DIALOGIC RELATIONSHIPS IN FAVOUR OF A CULTURE OF PEACE IN THE SCHOOL ENVIRONMENT

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Purpose: School is an environment for training and education for citizenship. Currently, there is a high rate of violence in the school environment, whether between students or between students and teachers, and this has worried parents, students, public bodies and society in general, as a place that should be welcoming and protective, has generated insecurity and fear. **Methods:** Bibliographic research in scientific articles dealing with school violence in Brazil; public survey for data collection; interpretation and analysis based on Bakhtinian theoretical assumptions about dialogic relations (Bakhtin, 2017; Fiorin, 2006; Sobral, 2019). **Results:** The data from the public survey shows that school violence is a multifaceted problem, as it has more than one root, among them the ineffectiveness of the educational process, teaching and the intervention of managers. The analysis shows that the problem requires a multifaceted solution, with the support of the community, the educational institution, the family and the government. **Conclusion:** The study showed that it is necessary to educate and train citizens to promote a culture of peace and to encourage peaceful conflict resolution. Prevention and intervention in cases of school violence are necessary to ensure a safe and healthy learning environment for students.

Keywords: school violence, conflict, culture of peace, dialogue, Bakhtin.

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A DIALOGICAL PROPOSAL FOR TEACHING LITERATURE IN BASIC EDUCATION

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Purpose: This project focuses on teaching literature reading today in primary schools. **Methods:** The teaching of literature that is taught in our schools is much more a discourse about literary schools than a pedagogical practice that places the student in front of the text. It is no exaggeration to say that we try to teach literature without text at school. The reflections of the philosopher of language, Mikhail Bakhtin, can support the pedagogical work of training readers by considering that reading is a dialogical process, which involves the subject and their socio-historical and cultural experiences. Bakhtin (1998, 2010) reflects that in reading there is a process of interaction between the reader, the text and the author and advocates a cooperative relationship between these three components. **Results:** The objective of this project is to study literature reading teaching practices adopted in basic education and propose other teaching methods based on Bakhtin's reflections and works that deal with reader training. **Conclusion:** The methodology will be a bibliographical review of works by Bakhtin (2010, 2008) that have literature as a focus and analysis of textbooks/paradidactic books adopted for teaching literature in basic education.

Keywords: teaching literature, basic education, dialogical relationships.

Approval CEPE/CEUA: 003/14.

Acknowledgments: CAPES and CNPq.

CREATING A HEROINE: AN ANALYSIS OF NYMERIA'S RHETORICAL *ETHOS* IN "THE TEN THOUSAND SHIPS", BY GEORGE R. R. MARTIN

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Purpose: This research aims to investigate the constitution of the ethos of the character Nymeria, the protagonist of the short story "The Ten Thousand Ships," which is part of the book *The World of Ice and Fire: The Untold Story of Westeros and a Song of Ice and Fire* (2014), by George R. R. Martin and Elio M. García Jr. **Methods:** Our analyses are based on the basic assumptions of Aristotelian rhetoric, as well as contemporary developments in neo-rhetorics, in interface with Discourse Analysis. Therefore, we used introductory works on rhetoric, such as those by Reboul (1998), Ferreira (2010), and Mateus (2018), as well as texts that specifically discuss the concept of *ethos* and its application possibilities. In this regard, we highlight Galinari's (2012) work on the construction of images of beings, things, or institutions thematized by the speeches. Additionally, our reflections consider the stages of the hero's journey, as proposed by Campbell (2007 [1949]) and developed by Vogler (2006 [1998]). **Results:** So far, our analysis demonstrates that the constitution of the character Nymeria's *ethos* is strongly based on the exaltation of values such as prudence, courage, strength, obstinacy, and magnanimity, all of which reflect the stages of the hero's journey. **Conclusion:** Given the construction of Nymeria's *ethos*, in clear opposition to the *ethé* constituted for the male characters in the narrative, we conclude that the short story under analysis has an important role in the construction of female protagonism in the general context of the work.

Keywords: rhetoric, *ethos*, hero's journey, *A Song of Ice and Fire*, Nymeria.

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THE LINGUISTIC-DISCURSIVE CONSTRUCTION OF "HUMOR AZUL" IN COMICS BY RODRIGO TRAMONTE

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Purpose: This research sought to investigate the verbal and non-verbal mechanisms involved in the construction of humor in the book *Humor Azul: o lado engraçado do autismo* (2015), by Rodrigo Tramonte. **Methods:** For this, we selected six comic strips, which were analyzed according to the theoretical assumptions of Textual Linguistics with a socio-cognitivist basis. Textual Linguistics considers the construction of the meaning of a discourse to be based on prior and shared knowledge of the interlocutors. To identify the linguistic mechanisms responsible for the humor in the text, we considered the works of Travaglia (1990, 1992), Gil (1995), Possenti (1991, 2007), Carmelino and Flores (2018), among others. Furthermore, to analyze the visual metaphors that made up our corpus, we used the works of Lakoff and Johnson (2002) and Santos (2017). **Results:** The results showed that metaphor and polysemy were used in creating humorous meaning in the cartoonist's work. We also observed that the aforementioned phenomena resulted from the close interaction between the verbal and imagery components of the strips, as both conveyed distinct meanings, with the verbal having a literal meaning and the visual having a metaphorical meaning. **Conclusion:** We conclude, therefore, that the humor proposed by Rodrigo Tramonte in the book highlights one of the main difficulties of the autistic person: the comprehension of figurative language. Which leads us to the understanding that the work is aimed especially at non-autistic people, with the intention of illustrating the difficulties faced by those who fall on the spectrum.

Keywords: humor, Autism Spectrum Disorder, linguistic-discursive mechanisms, comics, Rodrigo Tramonte.

Acknowledgments: CNPq.

IT'S FOR LOVE: STEREOTYPE AND ETHICAL CONSTITUTION OF THE TEACHER IN HUMOR SKETCHES

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Purpose: This research aimed to investigate the constitution of teachers' *ethé* in humor sketches recorded in video format and made available by the comedian Diogo Almeida on his YouTube channel. Thus, we sought to examine how humor acts in shaping the discursive images of Basic Education teachers in these videos. **Methods:** To this end, we employed as a theoretical framework the assumptions of Aristotelian rhetoric, neorhetorics, and Discourse Analysis, as well as studies from various fields that deal with the nature of humor phenomena and their functions. Our corpus comprised four sketches selected from the most accessed videos on Diogo Almeida's channel until January 2024. **Results:** Our analyses revealed that the *ethos* of the teacher depicted in the comedian's sketches is characterized by traits of fatigue, irritability, and poverty, thus resting on a negative stereotype of this professional category, which contributes to stigmatization. Furthermore, it is worth noting that the exploration of stereotype is the main mechanism of humor production in the sketches, relying on resources such as hyperbole and linguistic variation. **Conclusion:** Thus, we observe a reinforcement of rhetorics of fatigue, disenchantment, vocation, academia, and deviation, which, according to Ferreira (2010), constitute the problematic dimension of the teacher's *ethos*, as well as confirming the role of humorous argumentation in maintaining the *status quo* or, when viewed from a critical perspective, enriching public debate about the specificities of the teaching profession in contemporary Brazilian society.

Keywords: *ethos*, teacher, humor, Diogo Almeida, sketch.

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DIALOGICAL ANALYSIS OF THE PODCAST EPISODE "AGROTÓXICOS: DOENÇA E PERSEGUIÇÃO"

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Purpose: This study was made with the intention and purpose of having the episode "Agrotóxicos: Doença e Perseguição" from the podcast "Prato Cheio" analyzed to identify instances of intertextuality and interdiscursivity. **Methods:** Based on the theories of Mikhail Bakhtin and his circle of study, the episode and its properties were put under the lens of the Dialogic Discourse Analysis, and before said instances of dialogic discourse were discussed, having its meaning inside the context explained. **Results:** The analysis allowed multiple instances of dialogism to be identified throughout the episode, notably, interdiscursivity and intertextuality, as explained in the article. **Conclusion:** Thus, it may be affirmed that, as proposed by Bakhtin, each statement is unique in itself and assumes a responsive position towards previous statements, constituting a string of the infinite net of dialogic discourses, also finding its way into the new forms of communication made possible by technological innovation, as the one presented in this article, the journalistic podcast.

Keywords: Dialogic Discourse Analysis, podcast, journalism.

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Acknowledgments: CNPq.

MASSACRES AND ATTACKS IN THE SCHOOL ENVIRONMENT: a look at dialogical relationships and intervention strategies

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Purpose: This research aims to present the increasingly frequent and elaborate problem in the current student context: "massacres and attacks in the school environment." This study covers the entire atmosphere surrounding the tragic events involving school massacres of any nature on a national level in recent times. Causes, consequences, case studies and subjects adjacent to the main content are exposed, such as the importance of effective communication and dialogical relationships in the academic environment between different atmospheres such as parents, students, employees and other members of the school body. **Methods:** The descriptive method shows the main issues surrounding the topic and the bibliographical research explores the theoretical contribution of Bakhtinian studies for the observation of dialogical relationships in data and information about massacres, different forms of school violence, how they manifest themselves in modern times, and intervention possibilities for the problem in question. **Results:** Various factors contribute to an individual becoming a perpetrator and committing what can be considered a massacre/attack. These factors should be linked to preventive and intervention measures that, if well-implemented and dialogical relationships observed, have the potential to prevent a disaster in the school environment. **Conclusion:** The research shows that to contain criminal acts—massacres and attacks—in the school environment, the entire school community, society, and public agencies must be agents of intervention for a culture of peace, prioritizing education focused on respect, ethics, and love for others.

Keywords: Massacre, attack, school violence, dialogic relations, Bakhtin.

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MENTAL HEALTH AND MASCULINITIES IN THE DOCUMENTARY THE SILENCE OF MEN

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Purpose: This study investigates discourses on masculinities concerning psychological distress, considering the high rates of suicide and depression among men in our society. We hypothesize that processes of mental health signification are related to discourses about what it means to be a man, which establish meanings and subjects based on discomfort regarding rigid gender identity processes enforced by sexism and patriarchal values, with significant intersections of class and race. **Methods:** The aim is to investigate testimonial statements that structure the documentary "The Silence of Men," produced by PapodeHomem, in order to understand the processes of meaning production about masculinities, with theoretical grounding in Discourse Analysis, articulated with Gender Studies and Lacanian Psychoanalysis. **Results:** The analyses enable the recognition of modes of subjectivation from a Hegemonic Masculinity that naturalizes virility as the privileged form of the masculine. This masculinity leads men to neglect care and self-care practices but expects someone else to care for them (usually women, through the motherhood device). By presenting testimonies that challenge this violence-producing masculinity, the documentary allows alternative meanings to formulate other ways of being and understanding oneself as a man in our society. **Conclusion:** Contribution to enhance knowledge production by situating issues from a critical perspective on gender, with contributions regarding the Sustainable Development Goals 3 (health and well-being) and 5 (gender equality) of the United Nations 2023 Agenda.

Keywords: masculinities, mental health, sexism, body, testimony.

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THE CONSTRUCTION OF THE SUBJECTIVITY OF THE ACTOR "DJ" IN "A MORTE DE DJ EM PARIS". THE NARRATIVE POINT OF VIEW AND THE RELATIONSHIP WITH INTERDISCOURSE

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Purpose: We analyse "A morte de DJ em Paris", by Roberto Drummond, with the aim of understanding the way in which the image of the protagonist is constructed in the short story. **Methods:** Firstly, a bibliographical survey was carried out through analysis of texts on the short story and on French semiotics, the theoretical model that underlies this research, especially on the generative path of meaning, and on the form how the historical-ideological context is reconstructed in the text. We then have begun the analysis of the story by applying elements of the theory to the narrative, observing the way in which figurative paths ot the story refer to the themes of the context of the military dictatorship in Brazil. **Results:** The short story mixes elements from the reality of the 1970s, a time in which the supposed death of DJ occurred in Paris, and elements of a fantastic, apparently absurd nature, such as the trial of this protagonist in a court in Brazil, based on testimonies from DJ's acquaintances. **Conclusion:** The doubt about the death or escape of the protagonist from Brazil in that moment metaphorizes the persecution against those who rebelled against the regime established here, which sounds absurd considering the story of DJ, a poor professor from Minas Gerais who was bad-adjusted to the environment in which he lived and whose dream was to find a blue woman, the result of his idealized fictional imagination.

Keywords: actor, ideological socio-historical context, fantastic literature, Roberto Drummond.

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PREPARATION OF AN INFORMATIVE BOOKLET ON THE NOVA CLASSIFICATION OF FOODS FOR PARENTS/COMPANIONS OF PATIENTS WITH EATING DISORDERS

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Purpose: Develop an informative booklet on the NOVA classification of foods for parents/companions of patients at the Center for Studies and Assistance in Obesity and Eating Disorders (NEOTA) at Unifran. **Methods:** This research was conducted from August 2022 to May 2023, where a booklet was developed with information on the precepts of the Food Guide for the Brazilian population that uses the NEW classification of foods based on the degree of processing, dividing them into in natura, minimally processed, processed and ultra-processed foods. Subsequently, the ISBN registration will be carried out. **Results:** The booklet will be made available to parents/companions of NEOTA patients and on the service's digital media, which has existed since 2009 and takes place weekly at the Unifran Nutrition Clinic. The service has a partnership with Psychology, Medicine (Psychiatry) and Physiotherapy 4.0 courses. **Conclusion:** It is believed that quality information, through clear language content and appropriate illustrations, can contribute to knowledge and the possibility of a better relationship with food and quality of life. Digital media should be stimulated for a greater reach of education and health promotion interventions.

Keywords: Health promotion, Eating disorders and food intake, Feeding.

Acknowledgments: CAPES.

EVALUATION OF SNACKING BEHAVIOR IN ADOLESCENT

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Purpose: To identify snacking behavior in female adolescents and verify if there is an association with nutritional status. **Methods:** This is a cross-sectional, quantitative, observational, descriptive study. The study was conducted with female adolescents aged 11 to 14 years from a public school in a middle-sized city from São Paulo. The Rep(eat)-Q snaking questionnaire containing 12 items, self-administrated which is being adapted by a research group, was used as well as a sociodemografic questionnaire answered by parentes or guardians. Nutritional status was assessed using the World Healthy Organization Body Mass Index and curves. **Results:** a total of 23 girls participated with an avarage age of 12.5 years. The household income of 43.48% was about one to two wages. Regarding eating habits, it was observed that 47.82% consumed fruits and vegetables, while 52.17% consumed ultra-processed products once to twice a week and approximately 60% of the adolescents ingest proteins. Of the 23 participants, 5 (21.74%) had snacking behavior, 80% had a normal BMI and 20% had obesity. **Conclusion:** It was concluded that the snacking behavior is more present in eutrophic girls than in overweight and obese girls, which emphasizes the importance of studies such as this one to support eating disorder prevention programs.

Keywords: eating behavior, adolescents, snack.

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EVALUATING CHLORHEXIDINE'S INFLUENCE ON BIOFILM MATRIX PROTEINS OF *C. parapsilosis* AND *S. aureus*

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Purpose: This study aimed to evaluate the effect of chlorhexidine (CLX) on the matrix protein component of biofilms formed by *Candida parapsilosis* sensu stricto and *Staphylococcus aureus*, both in monospecies and mixed-species conditions. **Methods:** We utilized isolates of *Candida parapsilosis* consisted of three environmental isolates obtained from bedside tables, bed rails, and cardiac monitors, along with two clinical isolates from the hands of hospital workers, all of which are biofilm-forming and fluconazole-resistant. Additionally, two standard strains, *C. parapsilosis* sensu stricto ATCC 90019 and *S. aureus* ATCC 25923, were included. The antiseptic used was a commercially available 0.5% chlorhexidine solution (CLX, Riohex TM), applied without dilution. Biofilms were cultured in 96-well microplates for 48 hours at 37 ºC. Matrix proteins were quantified using the Bradford method before and after a 3-minute exposure to the antiseptic. **Results:** Protein concentrations in *C. parapsilosis* biofilms ranged from 22.05±1.62 to 34.89±8.00 µg/mL, while mixed-species biofilms showed concentrations from 28.61±1.64 to 40.76±0.85 µg/mL. For *S. aureus* biofilms, protein levels were 54.46±5.78 µg/mL. Post-exposure to 0.5% CLX, protein levels in *C. parapsilosis* biofilms varied between 27.94±1.75 and 40.12±2.9 µg/mL, and in mixed biofilms, between 33.4±2.23 and 51.05±5.12 µg/mL. *S. aureus* biofilms exhibited protein concentrations of 62.6±1.3 µg/mL after exposure to CLX. **Conclusion:** These findings suggest that the effect of chlorhexidine on the matrix components of single- and dual-species biofilms of *C. parapsilosis* and *S. aureus* provides valuable insights into microbial tolerance to environmental stresses, an area often underestimated.

Keywords: Biofilm, Hospital contamination, Disinfection.

Acknowledgments: FAPESP (project 2023/03925-7).

EFFECTIVENESS OF CHLORHEXIDINE AND ORTHOPHTHALALDEHYDE ON FUNGAL BIOFILMS: IMPACT OF CATHETER MATERIAL ON *Candida parapsilosis*

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Purpose: The study investigates the effectiveness of chlorhexidine (CLX) and orthophthalaldehyde (OPA) in preventing and eradicating fungal biofilms on catheters, focusing on different materials. **Methods:** Isolates of *Candida parapsilosis* consisted of three environmental isolates obtained from bedside tables, bed rails, and cardiac monitors, along with two clinical isolates from the hands of hospital workers, all of which are biofilm-forming and fluconazole-resistant. Additionally, the standard strain, *C. parapsilosis* sensu stricto ATCC90019, was included. The antiseptics used were a commercially available 0.5% chlorhexidine solution (CLX, Riohex™) and 0.55% orthophthalaldehyde (OPA, Cidex™). Biofilm quantification was performed using total plate count methodology and scanning electron microscopy analysis. **Results:** The results from exposing *C. parapsilosis* biofilms to CLX in Polytetrafluoroethylene (PTFE) catheters indicated that at 39µg/mL, there was no statistical difference between isolates. However, at 156µg/mL, isolate 936C demonstrated significant resistance ($p < 0.01$). Regarding OPA, isolate M935 was the most sensitive, while 936C was the most resistant. In High Density Polyethylene (HDPE) catheters, exposure to CLX showed little variability between isolates, whereas biofilms exposed to OPA maintained variability. When comparing the biofilms on the two catheter types, isolates CBL1031 and 936C did not significantly differ in the number of cells after exposure. The results indicate that the resistance of *C. parapsilosis* biofilms to sanitizers varies depending on the type of catheter material. **Conclusion:** This highlights the importance of considering catheter material when selecting disinfection strategies. This research contributes to developing effective strategies against fungal infections in catheters, thereby promoting health and safety in medical environments.

Keywords: Catheter material, Disinfection strategy, Fungal biofilms, Medical device hygiene.

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EVALUATIN THE ANTIGUNGAL POTENTIAL PF ZINC OXIDE NANOPARTICLES ON *trichophyton mentagrophytes*

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Purpose: The study aimed to investigate the in vitro antifungal activity of zinc oxide nanoparticles (ZnO-NPs) against *T. mentagrophytes* in both planktonic and biofilm growth forms. The ZnO-NPs were synthesized using the simple co-precipitation method with sodium hydroxide (NaOH) and zinc sulfate heptahydrate ($ZnSO_4.7H_2O$). Characterization was performed via scanning electron microscopy (SEM) and X-ray diffraction. **Methods:** ZnO-NPs were synthesized by mixing sodium hydroxide (NaOH) with zinc sulfate heptahydrate ($ZnSO_4.7H_2O$) through a co-precipitation method. Characterization of the nanoparticles was conducted using scanning electron microscopy (SEM), which revealed plate-like structures composed of spheres measuring 20 to 30 nm. X-ray diffraction confirmed the crystallographic structure compatible with the spherical shape in plate-like formations. Antifungal activity was assessed using the broth microdilution method to determine the minimum inhibitory concentration (MIC) and the minimum biofilm inhibitory concentration (MBIC) at 50% ($MBIC_{50}$) and 80% ($MBIC_{80}$). Additionally, the anti-adhesion activity of the *T. mentagrophytes* biofilm was studied using 96-well microplates. **Results:** The MIC of ZnO-NPs was determined to be 250 µg/mL. The $MBIC_{50}$ and $MBIC_{80}$ values were 1000 µg/mL and greater than 2000 µg/mL, respectively. Notably, a concentration of 62.5 µg/mL inhibited 50% of fungal cell adhesion. These findings suggest that ZnO-NPs have significant antifungal properties that could be applied in the treatment of dermatophytosis caused by T. mentagrophytes, a condition affecting a large population. **Conclusion:** ZnO-NPs synthesized via a simple co-precipitation method exhibit substantial antifungal activity against *T. mentagrophytes*, both in planktonic and biofilm forms. The ability of ZnO-NPs to inhibit fungal cell adhesion at low concentrations highlights their potential application in the treatment of dermatophytosis.

Keywords: Dermatophyte, Nanoparticle, Zinc oxide.

Approval CEPE/CEUA: FAPESP: project 2023/05260-2.

Acknowledgments: FAPESP, CAPES and CNPq.

ANTIFUNGAL EFFECTS OF PLANT-BASED COMPOUNDS ON *Malassezia spp.*

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Purpose: This study evaluated the antifungal potential of various essential oils (EO) against *Malassezia spp*., examining both planktonic (free-growing) and sessile (biofilm) forms. **Methods:** To determine the Minimum Inhibitory Concentration (MIC) and Minimum Biofilm Inhibitory Concentration (CBIM), the broth microdilution method was employed using 96-well plates and the strain *Malassezia furfur* ATCC 14521. The essential oils tested included those extracted from oven-dried leaves (OESM-dl) and *in natura* leaves and branches of *Schinus molle* L. (OESM-b), as well as *Cinnamomum cassia* bark (OECC). Additionally, mixtures of *Schinus molle* L. and *Cinnamomum cassia* essential oils were tested in proportions of 25% (Blend 1), 50%, and 75% of the former. Hexane extracts from purple *Psidium rufum* DC leaves during the rainy season, the green pericarp of purple *Psidium rufum* DC, and *Pterodon emarginatus* (EHxP) were also evaluated. Hydroethanolic extracts from *Duguetia furfuraceae* (EEtDf), White *Pterodon emarginatus* (EEtP), *Cochlospermum regium* (Schrank) Pilg., and 70% and 80% alcohol extracts of oven-dried leaves of *Schinus molle* L. (EEtSM-70%) were included as well. **Results:** The results indicated that OECC was the most active compound against the yeast, with an MIC of 125 µg/mL whist OESM-dl and EEtDf were the least effective, each with an MIC of 2000 µg/mL. Against biofilm cells, Blend 1 and OESM-b, exhibiting CBIM 50 of 62.5 and 125 µg/mL, respectively, were the most effective. **Conclusion:** These findings suggest that new therapeutic options for treating *Malassezia spp*. may be derived from plant-based sources, and highlights the importance of phytotherapy as a Complementary Practice implemented in the Unified Health System.

Keywords: Antifungal activity, Plant-based therapeutics, *Malassezia spp*, Biofilm inhibition

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CHILDHOOD ADVERSITY AND MENTAL HEALTH PROBLEMS: AN INTEGRATIVE LITERATURE REVIEW

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Purpose: To identify relationships between childhood adversity and mental health problems in adolescence and adulthood. **Methods:** An integrative literature review was performed in four national and international databases: LILACS, SciELO, Scopus, and Web of Science. The following combination of keywords was used in all databases: "Mental health" and "Childhood adversity." The question: "What are the relationships between adversities in childhood and mental health problems in adolescence and adulthood?" formulated according to the PVO strategy (Population or problem, Variables, and Outcomes) guided the bibliographic search. Only articles published in the last five years (2019-2023) in Portuguese, English, or Spanish were selected. **Results:** Fourteen of the 61 articles identified met the inclusion criteria and were analyzed. The country with the highest number of studies was the United States, followed by China and Portugal. Exposure to adverse childhood experiences significantly increased the risk of mental disorders in adulthood, such as depression, anxiety, and alcohol and drug abuse. Child abuse and parental separation/divorce were associated with worse mental health outcomes, influenced by perceived stress, self-esteem, and insomnia. Furthermore, pregnancy risks and premature births were identified among women who experienced adverse childhoods. **Conclusion:** Childhood adversity is associated with different problems in adulthood, especially with mental health disorders.

Keywords: childhood adversity, mental health, literature review.

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MICROPOLLUTANTS: IMPACT ON HEALTH AND ENVIRONMENT

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Purpose: The aim of this study is to generate informative content, through a literature review, filled with accessible knowledge for the general population, so that the negative impacts of micropollutants can be mitigated in the environment. **Methods:** This is a literature review that gathers articles from the Scielo platform, CAPES Periodical Portal, as well as uses statistical data extracted from the official website of IBGE (Brazilian Institute of Geography and Statistics) and government resolutions from the Gov.br website. **Results:** The development of the pharmaceutical industry and the establishment of the Generic Medicines Law were events that expanded the supply of medicines to many people who began to self-medicate, buy medications in excess, and dispose of these products improperly. As a consequence, there is indirect contamination, as micropollutants follow a wide and complex route of introduction and persistence in the environment. Given this finding, and the increasing exposure of people to these contaminants, there is a public health alert since the physical and psychological well-being of the population is affected, which is still being studied and analyzed through scientific research. **Conclusion:** The existence of these pollutants and their impacts on human health are still largely unknown to the majority of the population. Thus, the monitoring of these contaminants is not restricted to water treatment, and the population can contribute by using and disposing of packaging and medications correctly.

Keywords: Micropollutants, Water treatment, Public health, Environmental contamination.

Acknowledgments: FAPESP, CAPES and CNPq.

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APPLICATIONS AIMED AT ADOLESCENT MENTAL HEALTH: A SYSTEMATIC LITERATURE REVIEW

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Purpose: To analyze the results of applications aimed at adolescent mental health. **Methods:** A systematic literature review was conducted in four international databases: VHL (Virtual Health Library), PMC (Pubmed Central), SCOPUS, and Web of Science. The following combination of keywords was used: Adolescent AND App AND "Mental Health" AND "Randomized Controlled Trial." The question formulated according to the PICO (Population, Intervention, Control, and Outcomes) strategy, "What are the results presented by randomized clinical trials intended to treat or promote adolescents' mental health?" guided the search. Only randomized clinical trials published in the last five years (2019-2023), published in Portuguese, Spanish, or English were selected. **Results:** Eight articles of the 91 identified met the inclusion criteria and were analyzed. The country with the highest number of studies was the United States, followed by Australia, Ireland, and Iceland. Almost all interventions (75%) obtained significant results in improving mental health. Specifically, depressive symptoms, rumination, psychological stress, and sleep problems were significantly reduced. Additionally, emotional regulation and psychological well-being improved significantly, and more adolescents manifested the intention to seek professional help to deal with psychological issues. **Conclusion:** Mobile applications have the potential to promote mental health resources among adolescents effectively.

Keywords: mental health, application, adolescent, literature review.

Acknowledgments: FAPESP, CAPES and CNPq.

EVALUATING THE EFFICACY OF ANTISEPTICS AGAINST *Candida parapsilosis* FROM HOSPITAL WORKERS' HANDS: IMPLICATIONS FOR INFECTION CONTROL

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Purpose: This study aimed to investigate the in vitro susceptibility of *Candida parapsilosis* strains, sourced from the hands of hospital workers, to commonly used antiseptics. **Methods:** The tested antiseptics included 70º GL ethyl alcohol (EA), isopropyl alcohol (AI), aqueous chlorhexidine (CLX) solutions at concentrations of 0.12% and 1.0%, alcoholic CLX solution at 0.5%, hydrogen peroxide 10% (H_2O_2), 10% aqueous polyvidone iodine (PVPI), and 1% chloroxylenol (CLL). Twenty-one cryopreserved *C. parapsilosis* isolates, along with the strains *C. parapsilosis* ATCC 90019 and *Candida albicans* ATCC 10231, were tested using a quantitative disk support test to evaluate antifungal activity. **Results:** The results highlighted that EA 70 and CLX 0.5% were the most effective antiseptics, achieving a reduction of 4.15 and 4.08 logarithmic units, respectively, equating to a 99.98% decrease in viable cells compared to the control. CLL 1% and CLX 1% followed, with reductions of 3.59 and 3.38 logarithmic units, respectively. Conversely, AI, PVPI, and H_2O_2 were the least effective, each causing only about a 1.0 logarithmic reduction in cell counts. **Conclusion:** These findings underscore the critical role of selecting effective antiseptics in healthcare settings to prevent infections. The high efficacy of EA 70 and CLX 0.5% in significantly reducing *C. parapsilosis* highlights their potential as key components in hygiene protocols, promoting better health outcomes through improved infection control measures. This study supports ongoing efforts to enhance healthcare-associated infection prevention strategies, emphasizing the importance.

Keywords: Antiseptics, Infection control, Healthcare hygiene, Hospital Workers, Antifungal activity.

Acknowledgments: FAPESP (Project 2023/15798-0).

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THE IMPACT OF EMERGING ORGANIC POLLUTANTS ON HUMAN HEALTH AND THE ENVIRONMENT: A COMPREHENSIVE STUDY

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Purpose: This work aims to deepen the understanding of the risks associated with Emerging Organic Pollutants (EOPs), highlighting their potential negative impact on human health and the environment. It also seeks to propose strategies to mitigate these impacts, contributing to public health protection and environmental management. **Method:** The work comprises a comprehensive review of scientific literature to identify the most common EOPs and their sources of contamination. Additionally, it includes investigations into the toxic effects of these substances on human health, with particular attention to critical organic systems such as the nervous, endocrine, and reproductive systems. Exposure and risk analyses will be conducted, along with the development of preventive and regulatory measures. **Results:** It is expected that the research provided a solid foundation of scientific knowledge on EOPs, including their effects on human health and viable mitigation strategies. The results contribute to the formulation of more effective public policies and the protection of the population's health by reducing exposure to these emerging substances. **Conclusion:** Researching and mitigating the impacts of emerging organic pollutants not only promote human health and preserve the environment but also directly contribute to achieving multiple Sustainable Development Goals (SDGs) established by the United Nations. By addressing these challenges, the work supports global efforts to promote a more sustainable and inclusive future for all.

Keywords: Emerging Organic Pollutants, Human Health, Risk Mitigation, Environmental Management.

Acknowledgments: FAPESP, CAPES and CNPq.

ASSOCIATIONS BETWEEN SOCIAL SKILLS, BULLYING, AND CYBERBULLYING IN SCHOOLCHILDREN: AN INTEGRATIVE LITERATURE REVIEW

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Purpose: To identify associations in the literature between social skills and participation in bullying and cyberbullying among schoolchildren. **Methods:** An integrative literature review was performed in LILACS (Latin American and Caribbean Literature in Health Sciences) and SciELO (Scientific Electronic Library Online/Brazil) databases. The following combined terms were adopted: 1) bullying AND "social skills," and 2) cyberbullying AND "social skills." The question: "What are the associations between bullying, cyberbullying, and social skills among schoolchildren?" elaborated according to the PVO strategy (P = population or problem; V = variables; O = outcomes), considering P (adolescents), V (social skills), and O (bullying or cyberbullying), guided the search. Only studies published in the article format, in Portuguese, English, or Spanish, specifically focusing on the topics investigated in this review, were selected. **Results:** Five of the 30 articles identified met the inclusion criteria and were analyzed. Most studies (60%) found no significant differences between the social skills of students involved in bullying situations (victims or aggressors) and uninvolved students, suggesting that students presented similar social skills development and deficits. Studies identifying significant differences report that victimization among boys was positively and significantly correlated with skillful responses, indicating that the greater the number of skillful responses, the greater the victimization and vice versa. Victimization among girls was associated with passive and active responses. **Conclusion:** The studies' mixed results do not allow for general conclusions on the relationship between social skills and participation in bullying and cyberbullying situations.

Keywords: bullying, cyberbullying, social skills, literature review.

Acknowledgments: FAPESP, CAPES and CNPq.

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EFFECTIVENESS OF INTERVENTIONS DURING EARLY CHILDHOOD OF PRETERM CHILDREN GENERAL DEVELOPMENT: A SYSTEMATIC REVIEW

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Purpose: Identify precocious interventions to the general development during the early childhood of preterm children. **Methods:** This systematic review follows PRISMA guidelines (PROSPERO: CRD42024523313). Randomized clinical trials in which precocious interventions were applied after hospital discharge in preterm children from 0 to 6 years old carried out by health professionals were included; as non-inclusion criteria there were articles with protocols without results. The following data bases were selected: MEDLINE, PubMed, Web of Science e Scopus from 2000 to 2023 using the keywords "premature infants AND early intervention (education) OR developmental care OR neurodevelopmental therapy OR infant stimulation". Four independent reviewers carried out the studies selection, data extraction and analyzed the evidence quality. **Results:** The search returned 970 articles, in which 7 corresponded to the eligibility criteria of this study and were therefore included. 767 preterm children were evaluated during periods since their hospital dispatch to their 5th birthday. The interventions types were focused in assistance with standard orientation about neuropsychomotor development and feeding and there were not significant differences when compared to control group. The study in which there were 284 preterm children demonstrated a development quotient significantly bigger at 2 years old, but this pattern did not continue until their 5th birthday. **Conclusion:** The development of preterm children showed it apex up to 2 years of age. Future studies must be done to evidence the best premature window of development aiming to the creation of effective intervention strategies to this group.

Keywords: premature infants, early intervention, infant stimulation, language development, systematic review.

Acknowledgments: CNPq.

CHARACTERISTICS AND RESULTS OF THE *PROGRAMA SAÚDE NA ESCOLA*: AN INTEGRATIVE LITERATURE REVIEW

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Purpose: To identify how the *Programa Saúde na Escola* [School Health Program] is implemented in Brazilian schools and its results. **Methods:** An integrative literature review was conducted based on the question: "How has the School Health Program been implemented, and what are its results?" which was elaborated according to the PICo strategy (Population or problem, Phenomenon of interest, and context). *"Programa Saúde na Escola"* was the term used in the bibliographic search performed in two databases: LILACS (Latin American and Caribbean Literature in Health Sciences) and SciELO (Scientific Electronic Library Online/Brazil). Only articles published in the last five years (2019-2023), written in Portuguese, English, or Spanish were selected. **Results:** The analysis included 18 articles (out of the 107 identified) that answered the question and met the inclusion criteria. Studies were identified in all Brazilian states. The results show that the program's actions are implemented according to a hierarchy, focusing on the individual and biological aspects. One-off, fragmented actions were centered on the health sector based on traditional teaching methodologies. Additionally, providing integral health care to students and coordinating intersectoral actions between the education and health spheres was challenging. **Conclusion:** Partial and fragmented actions demand the *Programa Saúde na Escola* to redefine how it is planned and implemented in Brazilian schools.

Keywords: School Health Program, evaluation, results, literature review.

Acknowledgments: FAPESP, CAPES and CNPq.

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INNOVATIVE ANTISEPTIC COMBINATIONS FOR HOSPITAL HYGIENE: CHLORHEXIDINE AND MENTHOL AGAINST *Candida parapsilosis*

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Introduction: The objective of this study was to assess the effectiveness of the antiseptic chlorhexidine (CLX), both alone and in combination with the plant compound menthol, against *Candida parapsilosis*. **Methods:** Twelve cryopreserved isolates of *C. parapsilosis*, originally collected from the hands of hospital workers, were utilized. In vitro tests, including the checkerboard test in 96-well microplates, evaluated the effectiveness of the antiseptic (1%) and menthol (4%), both separately and in combination, against the yeast. **Results:** The determination of the minimum inhibitory concentration (MIC) revealed values of 2% for menthol and 0.0156% and 0.0078% for CLX. The fractional inhibitory concentration (CIF) for menthol was 0.0312%, while for CLX, it ranged from 0.12% to 0.96%. The sum of the CIFs identified ten synergistic interactions and two indifferent interactions. **Conclusion:** The project aims to contribute to the reduction of hospital infections caused by *C. parapsilosis*, promoting more effective and sustainable asepsis practices. The successful implementation of these strategies can lead to significant benefits for patient safety and infection management in hospital settings, thereby enhancing overall health promotion and reducing the incidence of healthcare-associated infections.

Keywords: Asepsis practices, Infection control, Patient safety, Healthcare-associated infections, Antifungal agentes.

Acknowledgments: FAPESP, CAPES and CNPq.

EFFECTIVENESS OF INTERVENTIONS DURING EARLY CHILDHOOD OF PRETERM CHILDREN COGNITIVE DEVELOPMENT: A SYSTEMATIC REVIEW

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Purpose: Identify early interventions for cognitive development during the early early childhood of children born prematurely. **Methods:** This systematic review follows the PRISMA (PROSPERO: CRD42024523313) guidelines. Randomized clinical trials that applied early intervention after hospital discharge in preterm children aged 0-6 years were performed by health professionals; the criteria for non-inclusion were articles with a protocol without results. The MEDLINE, PubMed, Web of Science e Scopus databases from 2000 to 2023 were selected with the keywords "premature infants AND early intervention (education) OR developmental care OR neurodevelopmental therapy OR infant stimulation". Four independent reviewers performed study selection, data extraction, and quality of evidence. **Preliminary Results:** A total of 767 children born preterm in periods from hospital discharge to 5 years of age were evaluated. The types of intervention were focused on care with standard guidelines for neuropsychomotor development and diet, in which there were no significant differences when compared to the control group. Only one study proposes a new approach based on family-centered practice and environmental enrichment and demonstrated significant improvements in caregivers' skills in creating playful environments and cognitive improvement in preterm infants at 6 months of corrected age. **Conclusion:** The overall quality of evidence is considered low with few studies focused on post-discharge follow-up with effective interventions. As a positive point, it is possible to identify that innovative interventions can ensure the adequate cognitive development of the child born prematurely.

Keywords: premature infants, early intervention, infant stimulation, cognitive development, systematic review.

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RELATIONSHIP BETWEEN HYDRATION STATE AND SPEED 3200M TEST AMONG AMATEUR RUNNERS

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Purpose: The aim of this study was to examine the link between urine specific gravity (USG) and running speed at the anaerobic threshold (RSAT) in amateur runners during a 3200m test. **Methods:** Studied 5 male athletes with average training history of 11.6 ± 8.3 months, aged 29 ± 5.83 years, having a body mass of 71.75 ± 7.58 kg, and a height of 1.77 ± 0.07 m. The USG was calculated using the equation: BMI = body mass/height. The RSAT was determined by performing the 3200m track running test, using the equation: RSAT = 493 - 22.78 x time in minutes, which was subsequently converted to kilometers per hour (km/h) by dividing the result in m/min by 16.667. The test was conducted at 25°C, 71% humidity; analyzed with JASP 0.10.2. The significance level adopted was $p \leq 0.05$. **Results:** The USG assessment indicated that the athletes had an average USG of 1030.40 ± 9.02, with 60% dehydrated (1021-1030) and 40% severely dehydrated (>1030). Average running speed in the 3200m test was 13.48 ± 1.37 km/h. Moderate negative correlation between USG and RSAT (r= -0.546, p= 0.341), although it was not significant. **Conclusion:** Based on the study findings, USG alone was insufficient to predict long-distance running performance. Therefore, it is suggested to increase the sample size and to use USG in conjunction with sweat rate to analyze the influence of hydration status on the performance of long-distance runners.

Keywords: running, dehydration, athletic, performance.

Approval CEPE/CEUA: 3.718.916.

Acknowledgments: CNPq.

IEVALUATION OF PERFORMANCE AND FUNCTIONAL RECOVERY IN PROFESSIONAL BEACH TENNIS ATHLETES

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Purpose: This research project aims to evaluate the intensity characteristics of a Beach Tennis game and the recovery behavior of performance, biochemical, and functional parameters in high-level male athletes. **Methods:** After conducting the sample size calculation, the minimum number of 8 participants was identified, which corresponds to 100% of the athletes from Franca-SP who participate in Beach Tennis competitions organized by the International Tennis Federation. For sample characterization, anthropometric data (height, body mass, and body fat) and training history (years of training, weekly training hours, and number of competitions per year) will be obtained. To evaluate the game intensity, the blood lactate kinetics analysis will be used (rest and post-game: 0, 1, 3, 5, and 7 minutes) as well as heart rate monitoring of athletes during the game. For the analysis of lower limb muscle power and biochemical recovery, the following variables will be evaluated: performance test (countermovement jump height and vertical jump height, all in cm); creatine kinase analysis, with all these assessments occurring at the following times (rest and post-game: 0 minutes, 6h, 24h, 48h, and 72h). Functional recovery will be evaluated before sleep during the 3 days post-game using the Total Quality Recovery Perceived Scale (TQRper) with a score ranging from 6 to 20, discussed by Kenttä and Hassmén, 1998. The results will be presented as mean values, standard deviation, and correlation analyses will be performed to examine the relationship between variables. Statistical significance will be considered for $p<0.05$.

Keywords: physical performance, functional recovery, sports physiotherapy, muscle damage, injury prevention.

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EFFECTIVENESS OF INTERVENTIONS DURING EARLY CHILDHOOD OF PRETERM CHILDREN MOTOR DEVELOPMENT: A SYSTEMATIC REVIEW

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Purpose: Identify early interventions for motor development during early childhood of children born preterm. **Methods:** This systematic review follows the PRISMA (PROSPERO: CRD42024523313). Randomized clinical trials that applied early intervention after hospital discharge in preterm children aged 0-6 years were performed by health professionals; The non-inclusion criteria were articles with a protocol without results. The following databases were selected from 2000 to 2023: MEDLINE, PubMed, Web of Science, and Scopus with the keywords "premature infants AND early intervention (education) OR developmental care OR neurodevelopmental therapy OR infant stimulation". Four independent reviewers performed study selection, data extraction, and quality of evidence. **Preliminary Results:** The search returned 970 articles, in which 7 articles that correspond to the eligibility criteria of this study were included. A total of 767 children born preterm in periods from hospital discharge to 5 years of age were evaluated. The types of intervention were focused on care with standard guidelines for neuropsychomotor development, in which there were no significant differences when compared to the control group; only one study proposes a new method of influencing the ability to crawl, demonstrating an improvement in the motor development of preterm infants when compared to those who received conventional guidance. **Conclusion:** The overall quality of evidence is considered low, with few studies focusing on post-discharge follow-up with effective interventions. As a positive point, it is possible to identify that innovative interventions can ensure the adequate motor development of the child born prematurely.

Keywords: premature infants, early intervention, infant stimulation, motor development, systematic review.

Acknowledgments: University of Franca.

SEDENTARY LIFESTYLE AND CHRONIC DISEASES: A COMPARATIVE ANALYSIS OF BRAZIL AND THE GLOBAL SCENARIO

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Purpose: This study aims to investigate the current panorama of sedentary lifestyle and Non-Communicable Chronic Diseases in Brazil and worldwide. **Methods:** A narrative bibliographic review of the last cinco years was conducted using the following scientific search bases: PubMed, Google Scholar, and data available on the websites of the Ministry of Health and the World Health Organization. The search included the descriptors: sedentary behavior, chronic disease, healthy lifestyle, exercise, and health promotion. **Results:** After a selective review of articles, this study included 10 recent studies on lifestyle and chronic diseases. The review revealed that in Brazil, approximately 48.2% of the population does not meet the minimum recommendation for physical activity, and 14.9% are entirely sedentary. Globally, recent estimates indicate that about 27.5% of the adult population is sedentary, while approximately 81% of adolescents are sedentary. Regarding the prevalence of chronic diseases, the WHO reports that NCDs account for approximately 71% of all deaths worldwide, with cardiovascular disease being the leading cause. **Conclusion:** There is a high prevalence of sedentary lifestyles and non-communicable chronic diseases, including cardiovascular diseases, diabetes mellitus, hypertension, and cancer. The development and implementation of public policies that encourage an active lifestyle are fundamental for promoting global health.

Keywords: sedentary lifestyle, chronic diseases, physical activity, health promotion.

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STRATIFICATION OF THE RISK OF FALLS OF ELDERLY PEOPLE ATTENTIONING A CENTER CENTER

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Purpose: Assess the risk of falls among elderly people attending a senior citizens' community center. **Methods:** A quantitative, aplied approach with descriptive objectives was used. Data collection began after the approval of the research ethics committee, followed by individual invitations to participants. A sociodemographic questionnaire was applied to obtain the data, and the methodology used to assess the risk of falls included the Timed Up and Go Test (TUG), a recognized tool for assessing motor performance in simple tasks. **Results:** The sample of this study included 100 elderly individuals attending a community center in the interior of São Paulo. After applying the inclusion and exclusion criteria, 77 elderly individuals without motor sequelae were eligible to participate. Of the total, 66 (85.7%) were women. Regarding the risk of falls, 57 participants (74%) showed normal performance with low risk (less than 10 seconds), 18 (23.4%) showed moderate risk (between 10 and 20 seconds), and 2 (2.6%) showed increased risk (above 20 seconds). **Conclusion:** Most elderly individuals showed a low risk of falling, suggesting good functional mobility. However, a significant number of elderly individuals with high levels of time spent on the test are probably more prone to falls and to minor or major limitations in activities of daily living. Although elderly individuals lead active lives, it is necessary to carry out periodic monitoring to assess their risk of falling, considering that, even if elderly individuals do not have reduced mobility, there is still a probability of suffering imbalances and consequently falls.

Keywords: Aging, Risk Factors, Health of the Elderly.

Approval CEPE: 5.792.659

Acknowledgments: CNPq e Unifran.

EXPLORING MENTAL HEALTH AND QUALITY OF LIFE IN HEMODIALYSIS PATIENTS: AN EXAMINATION OF GENDER DIFFERENCES

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Purpose: investigation of anxiety and depression symptoms and quality of life in patients undergoing hemodialysis. **Methods:** This study employed a quantitative field research approach, with a cross-sectional analysis and descriptive-correlational objectives. Three questionnaires were used to gather data: a sociodemographic questionnaire, the WHOQOL (assessing quality of life), and the Hospital Anxiety and Depression Scale (HAD). Data collection took place at a nephrology clinic in the interior of São Paulo, involving patients aged between 18 and 60 diagnosed with Chronic Kidney Disease (CKD) undergoing hemodialysis. **Results:** The sample comprised 64 participants, with a mean age of 48 years. The mean score for anxiety was 6.41 ± 4.02, and for depression, it was 5.55 ± 4.20. A possible relationship between gender and anxiety was observed ($p = 0.138$), while no significant association was found between gender and depression ($p = 0.236$). However, women tended to report higher levels of anxiety and depression compared to men. There was a significant negative correlation between overall quality of life scores and levels of anxiety and depression, indicating that higher anxiety and depression scores were associated with poorer quality of life. **Conclusion:** Based on the data presented, highlight a significant trend between gender and the prevalence of anxiety and depression symptoms, with women reporting higher levels. This underscores the importance of gender-sensitive approaches in assessing and treating mental health conditions, recognizing the different experiences and needs of men and women undergoing hemodialysis.

Keywords: chronic kidney disease, anxiety, depression, hemodialysis.

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FAMILY GENOGRAM: A HEALTH PROMOTION TOOL

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Purpose: To understand the practical contributions of the Genogram and the Calgary Model of Family Assessment (MCAF) to promoting family health. **Methods:** This is a qualitative study, with an emphasis on bibliography and fieldwork. The review selected articles from scientific databases such as CAPES and Scielo, published between 2019 and 2023. Semi-structured interviews were carried out on 25/03/2024 with two families referred by the Psychology Clinic at the University of Franca/SP, after approval by the Research Ethics Committee. **Results:** The review, based on 12 articles, together with the content of the interviews made it possible to understand the family dynamic, its structure and extensive relations with the community. As predicted by the MCAF and the Genogram, it was found that health problems such as alcohol and substance use, mental conditions such as depression and panic or even occurrences of social vulnerability are perpetuated throughout the generations. It is also important to have a significant support network to help the family meet their demands in order to prevent health problems. Conflicts related to substance use and religious factors were also observed. **Conclusion:** The Calgary Model and the instruments that make it up, such as the Genogram and Ecomap, are of great help in identifying and understanding the dynamics of a family. It should be emphasized that understanding health promotion together with these tools can strengthen public policies aimed at guaranteeing the rights of families.

Keywords: Genogram, Family Assessment, Quality of Life, Health promotio n. Calgary assessment model.

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Acknowledgments: CNPq.

WHITE FLAG: FOR CITIZENSHIP AND HUMAN RIGHTS AT SCHOOL

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Purpose: To reflect critically on school violence, raising awareness about human rights and citizenship, among high school teenagers at a school in São Paulo. **Methods:** Bibliographic survey of articles on Google Scholar and Scielo, of articles published between 31 may 2019 and 31 may 2024. The descriptors were used: human rights, violence, violence in schools. 33 articles were found and three were selected for study, as they were in line with the project objectives. Conversation circles were held with 50 teenagers, using video projections and application of dynamics, to encourage communication, listening and debate about violence at school. **Results:** School is a space for training and building citizenship, but it has been characterized by aggression in the pedagogical sphere, compromising the formation of ideas and opinions. In the conversation circles it was noted the existence of prejudice and discrimination due to racism, machismo and bullying, among others. This violence is associated with the level of self-esteem and perception that the individual has of themselves. They are vulnerable people, with low self-esteem, who have difficulty defending themselves or withstanding pressure. **Conclusion:** Although the Child and Adolescent Statute ensures full protection for children and adolescents, the control and perception of violence is up to the school, family and society. It is crucial to give teenagers a voice, understand them and guide them in their needs, encouraging respect and tolerance for differences. The culture of peace is achieved through the creation of healthy and democratic environments, based on human rights, that make schools a safe place for all people on an equal basis.

Keywords: Human Rights, Violence in schools, Culture of peace.

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SERVICE CENTER FOR VICTIMS OF VIOLENCE: SPACE FOR LISTENING AND WELCOME

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Purpose: to study violence against women and the impacts of the Center for Assistance to Victims of Violence (NAVV) in a city in the interior of São Paulo. **Methods:** Qualitative and exploratory study, from a dialectical perspective, with a literature review with the descriptors violence against women, reception, psychosocial support, in the Google Scolar and Scielo databases of research from may 2019 to may 2024. **Results:** historical context of violence against women results from power relations, in which women are seen as submissive, due to socially constructed gender inequality. It is a public health problem that consists of any action that harms your physical, sexual and psychological integrity, including threats. It can be committed by the spouse, relative or people who live with the victim and affects all ages, social class, education or ethnicity. It is estimated that in Brazil one in three women has suffered some type of violence. The NAVV service, linked to the Public Ministry, demonstrated commitment in welcoming victims and care with documentation and confidentiality, which reinforces reliability and seriousness. Weekly meetings are held with men who have committed violence, with significant results in reducing recidivism. The use of alcohol and illicit drugs are identified as the biggest risk factors. **Conclusion:** NAVV plays a fundamental role in listening, guidance and referral, legal assistance, monitoring protective measures, working with aggressors and actions for female empowerment, a crucial role in combating violence, which contributes to guaranteeing the rights of victims.

Keywords: Women victims of violence, reception, psychological support.

Acknowledgments: CNPq.

EDUCATIONAL MATERIALS AS A STRATEGY FOR HEALTH PROMOTION AND GERIATRIC EDUCATION

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Purpose: To develop educational materials to promote the appreciation of the elderly and combat ageism. **Methods:** This is a methodological study, conducted from August 2023 to April 2024, through the construction of playful and educational e-books with information about human aging. The following steps were established for the creation of the materials: a) integrative review on the subject; b) selection and choice of articles from the last five years (2019 to 2024); c) textual elaboration; d) design development. The study did not require approval from the Human Research Ethics Committee according to Resolution 466/12 of the National Health Council, as it is documentary research with access to public sources and does not directly involve participant engagement. **Results:** Regarding the elderly, the use of playful and objective information stands out as an important strategy to promote and disseminate the appreciation of the elderly within their community. Three educational digital books were created to support the strengthening of bonds, combat ageism, and encourage good health practices. The material's structure was guided by the Sustainable Development Goals (SDGs), primary care, and health promotion. **Conclusion:** When knowledge is co-constructed, educational materials demonstrate that the addressed themes help in general aspects that positively and significantly enhance well-being, autonomy, functionality, and geriatric empowerment.

Keywords: Human Aging, Older Adults, Health Promotion.

Acknowledgments: CNPq.

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SIMULATION OF A DAY CENTER FROM THE PERSPECTIVE OF GERONTOLOGICAL ARCHITECTURE: EXPERIENCE REPORT

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Purpose: To simulate the construction of an architectural project for a Day Center for elderly care that meets the multidimensional needs of elderly individuals in contemporary society. **Methods:** The research was conducted in two main phases: a comprehensive literature review on gerontological architectureand Day Centers, using academic databases such as PubMed, Scopus, and Capes Periodical. Articles published in the last five years were selected, emphasizing elderly individuals and sensory architecture. The second phase involved simulating an architectural project to create an environment that fosters and stimulates the physical, mental, and social capacities of individuals aged 60+, using computational modeling tools. The design parameters included ergonomics, safety, health technology, comfort, and gerontological accessibility. As this is an experience report, the study was exempt from ethical committee approval, regulated by Resolution 466/12. **Results:** Considering active aging and the Sustainable Development Goals aligned with the inclusive and adaptive architectural concept, it is essential to focus on aspects that improve the lives of the elderly population. Architecture plays a fundamental role in creating supportive and inclusive spaces that meet the biopsychosocial needs of this population group. **Conclusion:** A specific simulation of the Day Center in light of gerontological architecturedemonstrated the importance of an architectural design focused on the specific needs of elderly individuals in fostering territoriality and a sense of belonging. The application of these principles allowed for the creation of an environment that not only meets accessibility and safety requirements but also promotes the physical, emotional, and social well-being of users, fostering the premises of active aging.

Keywords: Accessibility, Architecture, Gerontological Architecture, Older Adults.

Acknowledgments: CNPq.

EVALUATION OF THE RISK OF FALLS IN ACTIVE ELDERLY PEOPLE USING THE FIVE-TIME SIT-TO-STAND TEST IN A CONVENIENCE CENTER

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Purpose: The movement of sitting and standing is considered a fundamental prerequisite for mobility and functional independence, since this movement is part of several Activities of Daily Living (ADL). Therefore, the Five-Time Sit-to-Stand Test is considered a useful tool to assess the ability to sit and stand. The Five-Time Sit-to-Stand Test measures the time taken to stand up five times, as quickly as possible, from a sitting position. Researchers have described its use as a measure of lower limb strength, balance control, fall risk, and exercise capacity. Longer sit-to-stand times have been related to increased risk of recurrent falls, slow walking pace, and deficits in other ADLs among community-dwelling older people. **Methods:** Data were collected through an individual interview, in addition to carrying out the Five-Time Sit-to-Stand Test. 24 men (average age: 69.37±5.9) and 38 women (average age: 70.51±6.18), active and with preserved mobility, participated in the study. Each participant was instructed to cross their arms over their chest and sit with their back resting against the back of the chair. Timing began when the evaluator said the word "already" and stopped when the participant's buttocks reached the seat of the chair after the fifth time standing. The evaluators asked patients to stand and sit down five times "as quickly as possible" without physical assistance. Normative data for the elderly are: between 60 - 69 years old: time of 11.4 seconds, between 70 - 79 years old: time of 12.6 seconds and between 80 - 89 years old: time of 14.8 seconds. **Results:** The men evaluated performed an average time of 17 seconds (±3.2) and the women 14 seconds (±2.8). **Conclusion:** The Five-Time Sit-to-Stand Test showed that the elderly people evaluated had a satisfactory average displacement, but that monitoring must be carried out to prevent falls in this population. The Five-Time Sit-to-Stand Test is low cost and easy to apply, being an excellent tool to include in the assessment of elderly people and guide professionals involved in identifying risks and preventing falls.

Keywords: : Elderly, Postural Balance, Geriatric Assessment.

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EVALUATION OF THE RISK OF FALLS IN ACTIVE ELDERLY PEOPLE USING THE FUNCTIONAL REACH TEST (FRT) IN A CONVENIENCE CENTER

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Purpose: Anterior Functional Reach Test (FRT) determines how much the elderly person is able to move within the limit of anterior stability. A measuring tape is attached to the wall, parallel to the floor, and positioned at the height of the volunteer's acromion. The individual is positioned with their feet comfortable and parallel to each other, perpendicular to the wall and close to the beginning of the measuring tape. With wrists in a neutral position, elbows extended and shoulders flexed at 90º, the volunteer is instructed to bend forward without touching the tape and then the movement on it must be checked. The result is calculated by averaging the difference between the initial and final position recorded on the tape. Displacement of less than 15 cm indicates the patient's fragility and risk of falls. **Methods:** Data were collected through an individual interview, in addition to carrying out the FRT. 24 men (average age: 69.37±5.9) and 38 women (average age: 70.51±6.18), active and with preserved mobility, participated in the study. **Results:** The men evaluated performed an average displacement of 15.2 cm (±3.5) and the women 18.2 cm (±3.8). **Conclusion:** The FRT showed that the elderly people evaluated had a satisfactory average displacement, but that monitoring must be carried out to prevent falls in this population. The FRT is low cost and easy to apply, being an excellent tool to include in the assessment of elderly people and guide professionals involved in identifying risks and preventing falls.

Keywords: Elderly, Postural Balance, Geriatric Assessment.

Approval CEPE/CEUA: 5.792.659

Acknowledgments: UNIFRAN.

EVALUATION OF THE RISK OF FALLS IN ACTIVE ELDERLY PEOPLE USING THE TIMED UP AND GO (TUG) TEST IN A CONVENIENCE CENTER

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Purpose: The Time Up and Go (TUG) test is used as a predictor of the risk of falls for elderly people. It consists of getting up from a chair, walking at your usual pace for a distance of 3 meters, turning around 180 degrees and returning to your seat. Its outcome is measured by the measured time, and the longer the time for execution, the greater the risk of falling. the goal was assess the risk of falls in active elderly people from a convenience center. **Methods:** Data were collected through an individual interview, in addition to the TUG. The study included 24 men (mean age: 69.37±5.9) and 38 women (mean age: 70.51±6.18), active and with preserved vmobility. The test is based on the following scores: up to 10 seconds (low risk of falls), between 11 and 20 seconds (low risk of falls but must be monitored), between 21 and 29 seconds (moderate risk of falls), greater than or equal to 30 seconds (high risk for falls). **Results:** The evaluated men performed an average displacement time of 10.61 seconds (±3.52) and women 9,47 seconds (±2.81). **Conclusion:** The TUG showed that the elderly people evaluated had a good commute time, but that follow-up should be carried out to prevent falls in this population. The TUG has a low cost and is easy to use, making it an excellent tool to include in the assessment of elderly people and guiding professionals involved in identifying risks and preventing falls.

Keywords: Elderly, Postural Balance, Geriatric Assessment.

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EVALUATION OF THE CYTOTOXIC POTENTIAL OF THE RUTHENIUM COMPLEX [Ru(dmp)(dppe)$_2$]PF$_6$ IN BREAST CANCER CELLS

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Purpose: The aim of this study was to evaluate the cytotoxic potential of the complex [Ru(dmp)(dppe)$_2$]PF$_6$ in triple-negative breast cancer cells. **Methods:** The XTT colorimetric assay was used to assess cytotoxicity in four cell lines: human non-tumorigenic mammary gland epithelial cell lines (MCF-10A) and human mammary adenocarcinoma (MDA-MB-231), as well as murine mammary carcinoma cell lines (E0771 and 4T1). [Ru(dmp)(dppe)$_2$]PF$_6$ concentrations ranging from 0,1 to 15,0 µM were evaluated. **Results:** The results demonstrated an IC50 of 0,3 and 0,1 µM for human cells (MCF-10A and MDA-MB-231), respectively, resulting in a selectivity index of 3,0. For murine cells (E0771 and 4T1), the IC50 was 8,1 and >15,0 µM, respectively. **Conclusion:** In this context, the ruthenium complex [Ru(dmp)(dppe)$_2$]PF$_6$ emerges as a promising antitumor candidate, as it demonstrated significant cytotoxicity and selectivity for MDA-MB-231 cells. Therefore, under the experimental conditions used, the data generated can contribute to the advancement of other studies to enable the development of more effective and safe therapeutic strategies for the treatment of triple-negative breast cancer.

Keywords: Ruthenium Complex, triple-negative breast cancer, XTT.

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URBAN PLANNING AND SOCIO-SPATIAL SEGREGATION

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Purpose: This article aims to investigate evidence on how the lack of quality urban planning contributes to the socio-spatial segregation of vulnerable groups, with the aim of encouraging reflection on its impact on health promotion. **Methods:** Bibliographical reference research through health promotion letters and publications by Dr Raquel Rolnik on urban planning. **Results:** Health promotion letters are documents generated through international conferences that discuss concepts and deal with collective actions on health promotion. The Ottawa letter, the Sundsvall declaration, Jakarta and other records configure health as a social product, elevating this concept beyond traditionally known sectors, such as hospital and laboratory spaces. Among the fields of action disseminated in the letters is the creation of healthy environments. Adelaide's declaration, for example, explains that public living spaces directly influence the well-being of a population, highlighting the importance of creating spaces that improve the physical and social conditions of a less privileged community. **Conclusion:** Urban planning is an important tool for reducing inequalities and promoting health by creating accessible, healthy and sustainable urban spaces that provide quality of life, in a scenario that emphasizes the relationship between urban space and health.

Keywords: city planning, social segregation, health promotion, urban area.

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THE BUILT TO SUIT CONTRACTS IN LEASING AND THEIR APPLICABILITY THROUGH LAW N° 12.744 (TENANCY LAW)

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Purpose: The objective of this study is to present an in-depth and detailed analysis of built to suit contracts, in light of the innovation brought by Law No. 12,744/2012, which includes in its article 54-A (Law No. 8,245/ 91) this contractual modality, thus making this type positive in the Brazilian legal system. Its legal nature is analyzed, as well as its possible classifications, highlighting its forms of extinction and its legal consequences. Finally, it should be mentioned that this article aims to demonstrate the application of built to suit in Brazilian laws, in contrast to Law No. 12,744/2012 called Tenancy Law. The deductive bibliographic method will be used to develop the research.

Keywords: contracts, location, built to suit.

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THE DISCOVERY OF ARTIFICIAL INTELLIGENCE: MAKING IT ACCESSIBLE TO EVERYONE

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Purpose: The aim of this study was to evaluate the global dissemination of knowledge about the creation and use of artificial intelligence, focusing on Brazil, identifying challenges for equal access to information technology. **Methods:** A bibliographic-documentary method was used to analyze historical innovations in AI, such as Alan Turing's imitation game and the McCulloch and Pitts model. Initiatives in Brazil were also examined and some comparative data collected from Tortoise Media and Terra were demonstrated, demonstrating the perception and use of AI in Brazil in 2023. The inductive method was used to reach general conclusions about the evolution of this technology. **Results:** The research highlights the need to expand knowledge about artificial intelligence due to its historical importance. Brazil, although positive in the development of AI, faces challenges due to the lack of knowledge and access to the internet among the population. It is proposed to create free online platforms, focused on areas such as application development and robotics, as well as workshops in needy communities. Investments in companion robots for the elderly and smart devices for areas without internet access are also suggested. **Conclusion:** The historical creations of AI are fundamental to demonstrating the trajectory of information technology and its current importance, however the lack of technological knowledge, especially among low-income people, limits its development. Therefore, implementing global policies to promote knowledge, Accessibility and ethical use of AI is essential for a promising future.

Keywords: Evolution, Technology, Impact, Challenges, Accessibility.

Acknowledgments: UNIFRAN and CNPq.

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DRUG ADDICTION IN ADOLESCENCE AND ITS IMPACT ON MENTAL HEALT: A LITERATURE REVIEW

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Purpose: As the years go by, adolescents are consuming high levels of alcohol and other drugs. Adolescence is the period of development that covers the age range of 10 to 19 years and the use of licit or illicit drugs during this period directly affects the physical, social and mental development of the individual. Therefore, this study aims to presente the drug addiction of adolescentes and it´s effects on their mental health. **Methods:** This study is a bibliographic review, using PubMed and the Virtual Health Library as the search databases, with the following inclusion criteria: that it addressed the proposed theme, that it was published between 2019 and 2024, in English and Portuguese, and that it is freely available for reading. **Results:** The percentage of adolescents who use licit and illicit drugs or who have tried them has increased dramatically: in 2019, it was 27.3%, while in 2015, the percentage was 55.3%. The use of such substances directly affects the individual's neurotransmitter, emotional and physiological systems, resulting in depression, anxiety, sleep problems, and can also contribute to an increase in suicidal behavior. **Conclusion:** It can be concluded that the number of adolescents who use drugs has been increasing over the years. It can also be seen from this study that the subject is widely addressed by the scientific community. However, more studies are needed to address the mental health of individuals who use licit and illicit drugs, and studies that understand adolescents perception of drugs.

Keywords: adolescent health, substance use disorder, sustainable development goals.

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HEART OF ADOLESCENTS: PREVENTION OF CARDIOVASCULAR DISEASES

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Purpose: To identify predisposing risk factors among adolescents and their quality of life. **Methods:** descriptive and cross-sectional study, using a convenience sample. The Blood Pressure Classification, Blood Glucose and Body Mass Index, Tanner Scale, Cameron Questionnaire, IPAQ and AUQEI were used as parameters. **Results:** 33 students participated in this study, with an average age of 14+0.25 years, in which 2 (6%) were hypertensive, 2 (6%) were pre-diabetic. According to BMI, they were classified as underweight, 5 (15.15%) as overweight. Using the Tanner Scale, 5 (15.155%) classified themselves as P5, 8 (24.24%) as P4, 9 (27.275) as P3, 10 (30.30%) as P2 and 1 (2.03 %) in P1, 6 boys self-assessed in G3, 6 in G4 and 4 in G5 and girls, 7 in M3, 10 in M4. And, according to Cameron, 18 (54.5%) girls and boys were classified as adult pubescent, 8 (24.2%) as late pubescent and 7 (21.2%) as recent pubescent. Based on the IPAQ questionnaire, 14 (42%) were sedentary, 10 (36.3%) were very active and 9 (21.7%) were moderately active, and the AUQUEI totaled 45.31+4.98. **Conclusion:** it is considered that a sedentary lifestyle contributes to the increase in cardiovascular diseases, diabetes mellitus and obesity, in addition to influencing the quality of life of each student.

Keywords: Adolescent, Cardiovascular disease, Prevention.

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STUDY OF PHYSICAL-MECHANICAL PROPERTIES IN CEMENTITIOUS MATRICES WITH PARTIAL SUBSTITUTION BY DIATOMITE: LIGHTWEIGHT CONCRETE WITH PERLITE

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Purpose: Environmental concern is currently a widely discussed issue; therefore, it is important to investigate possible solutions to mitigate this impact. For instance, the release of carbon dioxide (CO2) gas is highly dangerous for the planet, potentially causing the greenhouse effect and abrupt climate changes. Additionally, the construction industry is progressively growing, yet it is responsible for a significant share of this gas emission. Consequently, research into the partial replacement of certain materials is seen as an environmentally friendly proposal. For example, replacing Portland cement with diatomite, either totally or partially, to improve its properties as a binder and help mitigate the greenhouse effect. **Methods:** This research aimed to analyze the physical-mechanical behavior of lightweight concretes obtained from perlite aggregate. For comparison, reference mixes were made with 100% Portland cement, 100% replacement with diatomite, and partial replacement with 50% of each. To achieve the objective, a compression test was conducted using the universal testing machine – EMIC at 7, 14, and 28 days. **Results:** It was observed that when diatomite was added as a total and partial replacement for Portland cement, it led to a reduction in initial compressive strength at the 7-day cure period. The main result showed that the reference sample, referred to as mix A, which did not include diatomite, achieved the highest compressive strength. In contrast, mix B, with 50% diatomite replacement, showed a reduction of approximately 50% compared to the reference mix. The sample with 100% diatomite replacement exhibited a reduction of about 92% of the same strength as the reference sample. **Conclusion:** These results may be related to the diatomite not behaving as a binder but rather as an aggregate.

Keywords: Lightweight concrete, Portland cement, Diatomite, Perlite.

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CARBONATION FRONT TEST – PREDICTION OF CONCRETE SERVICE LIFE IN THE CITY OF FRANCA - SP

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Purpose: In the long term, carbonation occurs in concrete, which is nothing more than the reaction of cured concrete mass with carbon dioxide (CO_2). This causes a change in pH and results in the formation of calcium carbonate ($CaCO_3$). This process can interfere with the reinforcement of the structure, meaning it not only affects the concrete cover, but the primary risk lies within the internal part of the structure. The objective of this study is to analyze the effects of CO_2 on the pH alteration of concrete and consequently its carbonation in an industrial environment in the city of Franca, São Paulo. **Methods:** Ten concrete test specimens were prepared. Cement, sand, crushed stone, and water were used. The specimens were then placed in the Industrial District neighborhood and left there for thirty days. After this period, the specimens were broken, and with the aid of a chemical solution composed of 1% phenolphthalein, 70% ethyl alcohol, and 29% water, the carbonation depth of the specimens was determined by the coloration the concrete acquires after reacting with the solution. **Results:** When carbonated, the chemical reaction does not produce any coloration. However, when the concrete is not influenced by carbonation, the chemical reaction in the specimen results in a pink coloration. After measuring the depth, an average was calculated, and it was possible to predict the useful life of the concrete in the industrial area using TUUTTI's (1982) formula.

Keywords: carbonation, structures, concrete, concrete structure, cover.

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REGISTRATION OF THE EPIDEMIOLOGICAL AND FUNCTIONAL CLINICAL PROFILE OF PATIENTS POST TRAUMATIC BRAIN INJURY AT A HIGH COMPLEXITY HOSPITAL IN THE INTERIOR OF THE STATE OF SÃO PAULO

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Purpose: Create a prospective registry of FSCMF Traumatic Brain Injury (TBI) cases, analyze the predictive factors of functional outcome of patients with TBI six months after the trauma, the internal consistency of the NOS-TBI items in the acute phase and after 6 months of the TCE. **Methods:** The Study prospectively evaluated patients over 18 years of age with TBI admitted to the FSCMF between October 2023 and April 2024. Demographic information, TBI etiology and signs and symptoms were considered. The clinical assessment took place on admission, during hospitalization (24 hours, 48 hours, 72 hours and 7 days) using Glasgow Coma Scale and NOS-TBI as assessment tools, and after six months, via connection to the TICS-M scales, Inventory of Edinburgh Lateral Dominance and the Modified Rankin Scale. **Results:** Most patients treated were male (61.11%), with a median age of 61 years. The most common etiologies of TBI were falls from standing height (38.88%), car accidents (27.77%) and being run over by cars. Approximately 77.77% of TBIs were mild, 5.55% moderate and 16.66% severe. The inter-rater reliability of the NOS-TBI was substantial (K >0.61), except for items 2 and 14, the internal consistency was excellent (Alpha >0.9). **Conclusion:** The partial results prove that the NOS-TBI scale has excellent internal consistency and substantial inter-rater reliability, except for items 2 and 14. It is essential to continue evaluating patients to check internal consistency between observers after six months and create a prospective record with the data.

Keywords: Traumatic Barin Injury (TBI), NOS-TBI, Predictive Factors, Internal Consistency.

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STUDY ON THE INFLUENCE OF SYNTHETIC FIBER ADDITION ON THE MECHANICAL BEHAVIOR OF MORTARS

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Purpose: The need to understand the mechanical behavior of mortars incorporating synthetic fibers in civil construction. In summary, this study contributes to the advancement of knowledge on the incorporation of synthetic fibers in mortars, providing important insights for the future development of these materials in civil construction. **Method:** This study adopted the methodology of an exploratory and descriptive bibliographic review with a qualitative approach. In addition to the bibliographic review, the methodology involved laboratory tests with the preparation of 24 mortar specimens with a mix ratio of 1:3:0.65 without the addition of glass and polyester synthetic fibers, plus 24 specimens of the same mix ratio with the addition of 0.5% of each type of synthetic fiber. The laboratory tests included evaluations after 28 days of flexural tensile strength and axial compressive strength. These tests were conducted following current technical standards to ensure the accuracy and reliability of the results. **Results:** The comprehensive analysis of these studies revealed a diversity of approaches and materials, highlighting the contribution of synthetic fibers to improving the mechanical properties of mortars, such as the significant improvement in mechanical strength and durability of the mortars. However, variations in the results were observed according to the type of mix and environmental conditions. Although it provided valuable insights, the research also pointed to the need for more detailed studies on the effects of fibers under different environmental conditions and the investigation of new protection techniques and fiber modifications. **Conclusions:** The incorporation of glass and polyester fibers has shown promising improvements in tensile and compressive strengths, demonstrating their value in increasing the durability and performance of mortar mixes.

Keywords: mortars, Synthetic fibers, mechanical behavior, flexural tensile strength, axial compressive strength.

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EXPERIMENTAL EVALUATION OF THE INCORPORATION OF SYNTHETIC POLYMERIC MACROFIBERS IN CONCRETE

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Purpose: The objective of this study was to evaluate the experimental use of synthetic polymeric macrofibers in concrete through mechanical compression and tensile tests. The analysis method was comparative between the reference concrete (REF) and the composite (CCF), concrete with the addition of synthetic polymeric fibers. **Methods:** Specimen preparation took place at the Civil Construction Laboratory of the University of Franca, located in Franca-SP. The concrete was produced according to the recommendations of the Brazilian standard NBR 6118 (ABNT, 2014). The cement used in the concrete composition was Portland cement CP II-E-32. The fibers selected for this study were synthetic polymeric macrofibers composed of polyethylene and polypropylene TUF-STRAND-SF, supplied by Viapol. The adopted mix ratio was 1: 1.52: 2.93: 0.55: 0.5% respectively for cement, sand, gravel, water, and fibers. **Results:** In the axial compressive strength and split tensile strength tests, data were statistically analyzed to ensure the significance of the results. For each type of concrete, the mean values, standard deviation, and coefficient of variation were calculated. **Conclusion:** This study found that the inclusion of macrofibers in the concrete resulted in better elasticity modulus and mechanical strength compared to the reference concrete.

Keywords: Macrofibers, Concrete, Polymeric, Viapol.

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QUALITY OF LIFE OF UNDERGRADUATE MEDICAL STUDENTS: AN OVERVIEW

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Purpose: Systematically search for evidence in the literature on the quality of life of undergraduate medical students. **Method:** this is a review of systematic reviews on the subject, carried out by Boolean search for articles in different databases (PubMed, Scopus, Embase and Scielo), using the descriptors "medical students" and "quality of life " conjugated to each other by the Boolean operator AND. Prior to the Boolean search, the present study was registered on the PROSPERO platform. The eligibility process was carried out based on the inclusion criteria: systematic reviews specific to the central theme, last 10 years. And exclusion: study with an approach to quality of life interventions, studies without necessary information to assess methodological quality. The process of excluding duplicates and blind analysis of related articles was carried out using the Rayyan system, followed by notes in the flowchart. The blind assessment of systematic reviews was carried out using the AMSTAR and Cochrane Collaboration instruments, and the level of evidence was assessed using GRADE. In compliance with PRISMA. **Results:** of the 16 studies identified, 2 were listed for extraction. A significant reduction in quality of life was observed in women and men, especially in the physical and psychological domains. **Conclusions:** there is a high prevalence of low quality of life in both sexes among medical students. Given the relevance of the subject and the scarcity of literary data, we suggest new studies to address the current conditions of this health issue.

Keywords: functional health, psychological aspects, medical degree.

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RISK FACTORS FOR CARDIOVASCULAR DISEASES IN MEDICAL STUDENTS: A SISTEMATIC REVIEW

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Purpose: Systematically identify and evaluate evidence on risk factors in undergraduates medical. **Method:** this is a systematic reviews on the subject, carried out by boolean search for articles in different databases (PubMed, Scopus, Embase and Scielo), using the descriptors "medical students", "risk factors" and "qcarivascular diseases" conjugated to each other by the Boolean operator AND. Prior to the Boolean search, the present study was registered on the PROSPERO platform. The eligibility process was carried out based on the inclusion criteria: Observational studies to the central theme, last 10 years. And exclusion: Intervention studies, studies in health professional, and studies without necessary information to assess methodological quality. The process of excluding duplicates and blind analysis of related articles was carried out using the Rayyan system, followed by notes in the flowchart. The blind assessment of systematic reviews was carried out using the Cochrane Collaboration instruments, and the level of evidence was assessed using GRADE. In compliance with PRISMA. **Results:** of the 22 studies identified, 12 were listed for extraction. A significant reduction in quality of life was observed in women and men, especially in the physical and psychological domains. **Conclusions:** In general, a prevalence of cardiovascular risk factors was observed in medical students in relation to the general population. However, in this population there is an important presence of risk factors: obesity, physical inactivity, salt intake, low level of self-perception, inadequate nutritional habits, especially in men.

Keywords: functional health, psychological aspects, medical degree.

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