

## EDITORIAL

Archives in Bioscience & Health, which belongs to the Post-graduated Program of Bioscience and Health of Unoesc, is launching the first edition of the Journal. This edition presents basic and epidemiological studies, including original research articles and reviews, which focus on biological factors in health and disease process; health diagnosis and intervention; health promotion and management; and human motricity and health.

It is our aim to promote the publication of important studies and reveal significant results in interdisciplinary areas to achieve national and international readers. In this sense, this edition contains relevant investigations, such as the study that evaluated the acute cytotoxic, oxidative and genotoxic effects of different concentrations of hydrogen peroxide ( $H_2O_2$ ) on adipose-derived stem cells (ASCs) obtained from human lipoaspirates. Since  $H_2O_2$  is used to induce the proliferation, migration, and regeneration of stem cells, this study focuses on cellular therapy. However, the cytotoxic effect of this molecule in this area was unclear. The results suggested that  $H_2O_2$  increased ASC mortality rates, active caspases 1, 3 and 8, and oxidative stress, as well as oxidative damage as assessed by lipid peroxidation increases.

In addition, another study reported cytotoxic agents and the causal mechanism, by increasing oxidative stress, is present in this edition. This investigation is a review that analyzed the history of the production and use of pesticides, their classifications, sources of exposure, and their risks to human health. This study contributes to a better understanding of agrochemicals and their effects on human health, since the authors reported that exposure to pesticides can occur directly through occupational exposure, or indirectly through environmental exposure and food. The prolonged human exposure to pesticides can result in neurological, reproductive, teratogenic, immunological disorders, and cancer.

Cancer incidence is a global concern, since cancer is a leading cause of death worldwide. In this sense, we published a significant review that reports epidemiology of cervix cancer in Brazil (2005-2015) focusing on mortality and hospital intervention rates. This study showed that cervical cancer has a high morbidity and mortality and is the main female gynecological neoplasia. Cervical neoplasia is still present in Brazil, although mortality has a tendency to decrease. This tendency is unequally distributed in Brazil, with the north and northeast regions showing the highest rates. This investigation indicates that better public policies are necessary.

Cancer treatment is considered a huge challenge to science. Cancer cells frequently present resistance to chemotherapy and have fast proliferation. In this sense, several

functional foods have been studied for anticancer purposes since they present a chemical matrix rich in bioactive molecules. Some of these molecules show important antitumor properties by increasing chemotherapy response and decreasing cancer cell proliferation. In this context, we published two original research articles that suggested the potential antitumor effect of native fruits from Amazon rainforest, Açaí (*Euterpe oleracea*, Mart.) and Tucumã (*Astrocaryum aculeatum*).

The authors revealed that Açaí has antitumor effects on prostate cancer cell line by decreasing cell viability and proliferation, apoptosis stimulation, and cell cycle arrest. Moreover, the antitumor activity of Tucumã (*Astrocaryum aculeatum*) was evaluated in acute promyelocytic leukemia (APL), which reduced cell proliferation by triggering apoptosis in a concentration-dependent manner and reversing chromosome translocation, especially at the lowest tested concentration of tucumã pulp extract.

These functional foods present several important biological properties, such as antitumor, as was observed in these previous studies. Moreover, we published another study that evaluated in vitro antimicrobial activity of tucumã oil (*Astrocaryum vulgare*) against 18 microorganisms. The results showed that oil of Tucumã presented antimicrobial activity against five important bacteria, four Gram-positive bacteria (*Enterococcus faecalis*, *Enterococcus faecium*, *Staphylococcus epidermidis* and *Streptococcus agalactiae*) and one Gram-negative (*Acinetobacter baumannii*).

However, bioactive molecules stability as well as tissue specific delivery are still challenging in the natural product field. In this context, there are many investigations looking forward to developing methods to increase bioavailability and/or to avoid degradation. Some of these researches propose nanoformulations as delivery cargoes of bioactive molecules, drugs, and nutraceuticals that could achieve these objectives as well as decrease collateral effects.

Hence, we published a study that determines effects of nanocapsules containing all-trans-retinoic acid under hemolytic and coagulation activity. The use of chemotherapeutic all-trans retinoic acid (ATRA) in the treatment of Acute Promyelocytic Leukemia has adverse effects on its oral administration. Therefore, the authors incorporated a system of drugs, through nanocapsules, in order to have a possible improvement in solubility, photosensitivity, lower toxicity, and generating pharmacological efficacy. The results suggested a promising benefit using these nanoparticles developed, since all concentrations showed hemolytic activity, however, when compared to nanocapsules with ATRA, it is observed that these carriers induced lower hemolytic toxicity.

Additionally, another study was published based on nanotechnology. This review indicated properties of chitosan matrix composites with hydroxyapatite and carbon

nanotubes and their use in bone tissue engineering. In the present study, it was possible to observe that chitosan matrix composites with hydroxyapatite and carbon nanotubes present a combination of properties highlighting the potential for application in bone tissue engineering.

Moreover, studies that inform mechanisms to prevent and control diseases are extremely important. In this sense, we published a research article that evaluated the effects of the Watsu method on functional capacity, anxiety, and depression in patients with Parkinson's disease. The results revealed that the Watsu method tends to improve motor and non-motor symptoms, through relieving pain, tension and releasing the muscles, facias and spine leading to the gain of flexibility and range of motion in patients with Parkinson's disease.

Therefore, our proposal is to offer a space for the exchange of multi-professional experiences and dissemination of knowledge. We hope to contribute to the research and that other authors can make references to the articles published here.

Prof. Dr. Francine C. Cadoná

Editor-in-Chief

