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Webinar on Natural Products, CAM Therapies, and Traditional Chinese Medicine

July 04, 2022 | Webinar

E-Poster

35 YEARS OF EXCELLENCE IN MEDICAL PUBLISHING

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Nanoencapsulation of phenolic compounds of Tunisian rosemary (*Rosmarinus officinalis L.*) extracts in silk fibroin nanoparticles

Kheiria Hcini [1,2], Antonio A. Lozano-Pérez [3,4], José Luis Cenis [3], María Quílez [3] and **Maria José Jordán [3]**
[1] University of Tunis El Manar, Tunisia
[2] University of Gafsa, Tunisia
[3] Instituto Murciano de Investigación y Desarrollo Agrario y Medioambiental (IMIDA), Spain
[4] Instituto Murciano de Investigación Biosanitaria (IMIB), Spain

Rosemary (*Rosmarinus officinalis L.*) is known to be an effective potential source of natural antioxidants which confer benefits to human health. Their bioactive properties are mainly due to phenolic compounds but these molecules are highly vulnerable to oxidants, light, heat, pH, water and enzymatic activities. Therefore, the stability and shelf life of phenolic compounds should be increased by being protected from chemical and physical damage by means of encapsulation prior to application. Encapsulation is becoming increasingly important in the pharmaceutical, food, cosmetics, textile, personal care, chemical, biotechnology, and medicinal industries due to its potential for stabilization and delivery of delicate and precious bioactive compounds. The aim of the present work was to describe the polyphenolic profile of Tunisian Rosemary, and further loading in silk fibroin nanoparticles. The loaded nanoparticles were characterized in terms of morphology, size, polydispersity, Z-potential, secondary structure of the protein, encapsulation efficiency, loading content, and antioxidant activity. Loaded nanoparticles were almost spherical and presented nanometric size and negative Z-potential. Although the encapsulation efficiency in silk fibroin nanoparticles and the drug loading content were low in the conditions of the assay, the encapsulated polyphenols retained near 85% of the radical scavenging activity against DPPH after 24 h. of incubation at 37°C. The results showed that post-distilled rosemary residues had an effective potential as natural antioxidants due to their significant antioxidant activity and seemed to be useful in both pharmaceutical and food industries with beneficial properties that might confer benefits to human health and these silk fibroin nanoparticles loaded with rosemary extracts are thus a promising combination for several applications in food technology or nanomedicine.

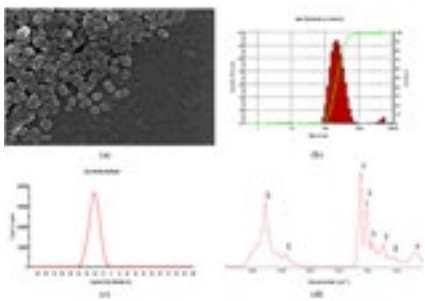

Figure 1: Characterization of RME–SFNs: (a) FESEM image of the freeze dried nanoparticles. (b) Size distribution (diameter in nm) by Intensity (%) measured by DLS. (c) Z-potential distribution and (d) ATR–FTIR spectrum

Recent Publications:

1. Hcini, K.; Sotomayor, J.A.; Jordan, M.J.; Bouzid, S. Identification and Quantification of Phenolic Compounds of Tunisian Rosmarinus officinalis L. Asian J. Chem. 2013, 25(16), 9299-9301.

Biography

Kheiria Hcini has her expertise in determination of polyphenolic profile and evaluation of antioxidant activities of bioactive molecules (Phenolic compounds and essential oil) of aromatic and medicinal plants Rosemary, thym.) and further loading in silk fibroin nanoparticles the plants having expressed the highest levels of phenolic compounds and having the best antioxidant capacity in silk fibroin nanoparticles (SFN), for the controlled release of these compounds in applications in the field of biomedicine, cosmetics, and food.

hcinikheiria@yahoo.fr

Jesús Herrera-Bravo et al, Curr Res Integr Med,
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Polyphenols found in *Pinot noir* pomace protect endothelial cells from the cytotoxic effect of Polycyclic aromatic hydrocarbons: A contribution to the recovery of industrial waste

Jesús Herrera-Bravo[1,2], Jorge F Beltrán-Lissabet[2], Kathleen Saavedra[2], Nicolás Saavedra[2], Monserrat Hevia[2], Marysol Alvear[2], Fernando Lanas[2], Luis A. Salazar[2]
[1]Universidad Santo Tomas, Chile
[2] Universidad de La Frontera, Chile

Introduction: Polycyclic Aromatic Hydrocarbons (PAH) are pollutants found in the air generated mainly by biomass burning. PAH produced by the contamination of firewood in Temuco, Chile, is made up of Phenanthrene, Fluoranthene, and Pyrene. PAHs are positively correlated with ROS production in endothelial cells, generating cellular dysfunction and the development of cardiovascular diseases. Grape pomace (GP) undergoes incomplete extraction during the vinification process, having high contents of phenolic components which are beneficial for human health due to their antioxidant activity.

Objectives: To evaluate the protective effect of Pinot noir pomace extract (EGP) on human endothelial cells against the cytotoxic effect of PAH.

Methodology: Chemical, in silico, molecular, and in vitro analyzes were carried out to evaluate the protective effect of Pinot noir pomace on endothelial cells subjected to the cytotoxic effect of PAH.

Results: 5 glycosylated anthocyanins, and 9 low molecular weight polyphenols, were found. Molecular docking indicated that cyanidin-3-glucoside and quercetin showed the highest affinities for the Nrf2 binding site on the Keap1 protein. HUVEC were exposed to increasing concentrations of PAH diluted in DMSO in a ratio of 3:1:1. The MTS assay showed that 150 µM PAH was sufficient to reduce viability by 75% ($p < 0.0001$). When cells were pre-treated with 400µg/mL EGP, 150µM PAH did not exert cell death (80% viability). HO-1 and NQO-1 significantly increased their expression after EGP treatment.

Conclusion: The polyphenolic components found in EGP had a beneficial effect as a protective agent in individuals living in areas contaminated with PAH, such as the city of Temuco, Chile.

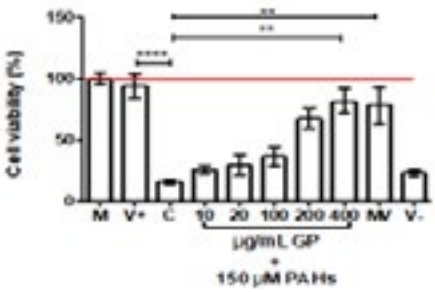

Figure 1: Effect of extracts generated from Pinot noir pomace on the viability of HUVEC. Endothelial cells were previously treated for 24 hours with different concentrations of pomace extract, and then 150 µM were added to each group of cells. Results are expressed as mean ± SD. The comparison between groups was carried out with ANOVA and Tukey's post test. Differences are statistically significant when p value < 0.05. M: cells and medium; V +: Cells +0.1% DMSO; C: Cells +150 µM PAHs; MV: 200 µM malvidin-3-glucoside; V-: Cells +10% DMSO.

Biography

Jesús Herrera-Bravo has research experience in natural products and their in vitro evaluation. He is the research team leader working in air pollution studies. Hei s currently the Director of the Department of Basic Sciences at Universidad Santo Tomas, Chile.

jesusherrerabr@santotomas.cl

Fábio Pimentel et al., Curr Res Integr Med,
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Treatment of skin injury with medicinal plants associated with a commercial compound of red fruit flour

Fábio Pimentel and **João Henrique Vidal Gois**
University of Santa Cruz do Sul, Brazil.

Experimental research, case study, of a descriptive nature, which sought to evaluate the effectiveness of four medicinal plants associated with a commercial product based on red fruits flour. The research subject was an 81-year-old housewife, without comorbidities, who does not use any medication and who carries out her daily tasks normally, whether at home or at social events. From a common mosquito bite on the lateral aspect of the ankle of the right foot, an inflammatory process began that gradually began to interfere negatively in this lady's quality of life, as the wound turned into a painful skin ulcer, itching and purulent discharge due to inflammation. After 1 year and a half of medical treatment using ointments, creams and oral anti-inflammatory drugs, the inflammatory process did not improve. Allopathic drugs were discontinue. It was decide to switch to an alternative treatment by Naturopathy, associating Arctostaphylos uva-ursi, Tecoma impetiginosa, Equisetum arvense and Cayaponia tayuya plants in tea for external use and Aloe vera associated with the product NutroxR, which is a flour of the following fruits red: grapes, beets, tomatoes, apples, carrots, lemons, açaí, parsley, plums and ginger. The protocol indicated: wash the wound twice a day with the tea of the four medicinal plants in the proportion of one teaspoon to 500 ml of water. After washing, application of aloe vera gum with a teaspoon of NutroxR product, which was also ingested a teaspoon dissolved in half a glass of water, twice a day. After one month of treatment, the ulcerative inflammatory process dried up completely, as shown in photographs 1 to 4. The effectiveness of the protocol adopted in the healing of the skin lesion can be observed.


Fig. 1: Day 1 Start


Fig. 2: After 1 Week


Fig. 3: after 2 Weeks


Fig. 4: After a mouth

Biography

Fábio Pimentel holds a Bachelor's Degree in Physical Education, Postgraduate Diploma in Acupuncture; Traditional Medicine in Scientific Naturopathy, Post-graduation in Scientific Clinical Naturopathy, and Master's in Education. He is a Professor at the University of Santa Cruz do Sul, Brazil in the Higher Course in Technology in Aesthetics and Cosmetics. He has professional experience and is teaching in the area of Physical Education in Integrative and Complementary Naturopathy. He has dedicated to naturopathy for more than 35 years.

pimentelfabio60@hotmail.com

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Accepted Abstracts

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Efficacy of medication and nutritional supplements for inflammatory diseases: A comparative analysis

Ryan Castle
Whole Health Institute, USA

Statement of Problem: The increasing burden of inflammatory diseases like COVID-19 requires systemic, long-term anti-inflammatory interventions. In addition to existing pharmaceutical treatments, natural supplementals such as melatonin, vitamin D3, and curcumin may offer effective anti- inflammatory treatments without the negative complications of medication.

Methodology: Effect sizes and known negative complications were compiled for anti-inflammatory interventions, including: meloxicam, tocilizumab, melatonin, vitamin d3, and curcumin. Effect sizes were computed through standardized mean differences and calculated by the effect of the intervention on a list of the inflammatory biomarkers most affected by COVID-19. Effect sizes were compared across pharmaceutical and supplemental interventions, with negative complications indexed across all interventions.

Findings: The pharmaceutical interventions produced large effect sizes for a limited number of biomarkers, with moderate to serious negative complications. The supplemental interventions produced a wide range of effect sizes, from small to large, across a very wide spectrum of biomarkers, with few to no negative complications.

Conclusion & Significance: Both pharmaceutical and supplemental interventions reduced some inflammation, but the broader array of biomarkers affected and significantly fewer number of negative complications suggest supplemental interventions could be more advantageous for persistent use. This is relevant in consideration of the inflammatory burden of long-COVID. Supplemental anti- inflammatory interventions should be considered for adjunct, long-term treatment of chronic inflammatory diseases.

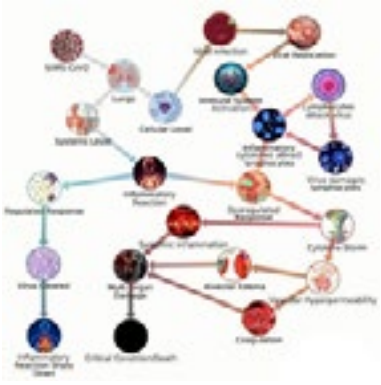

Figure 1: Path of systemic inflammatory dysregulation as typified in SARS-CoV2. Interrupting the dysregulated response requires regulation of inflammatory biomarkers, as this paper examines via different interventions.

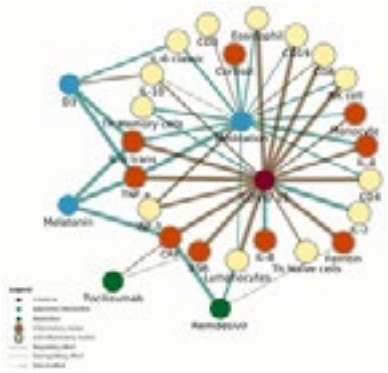

Figure 2: data point map of catalysts, inflammatory markers, and effect size of connection. Color of the circles identifies whether an inflammatory marker, anti-inflammatory marker, adjunct intervention, medication, or COVID-19 is being referenced. Blue connecting lines indicate a regulating effect from the catalyst to the marker. Brown connecting lines indicate a regulating effect from the catalyst to the marker. The thickness of the connecting line represents the relative effect size of the catalyst on the marker

RecentPublications:

1.Bushell, W., Castle, R., Williams, M. A., Brouwer, K. C., Tanzi, R. E., Chopra, D., & Mills, P. J. (2020). Meditation and Yoga Practices as Potential Adjunctive Treatment of SARS- CoV-2 Infection and COVID-19: A Brief Overview of Key Subjects. The Journal of Alternative and Complementary Medicine, 26(7), 547–556. https://doi.org/10.1089/acm.2020.0177

2.Castle, R., Bushell, W. C., Mills, P. J., Williams, M. A., Chopra, D., & Rindfleisch, J. A. (2021). Global Correlations Between Chronic Inflammation and Violent Incidents: Potential Behavioral Consequences of Inflammatory Illnesses Across Socio-Demographic Levels. International Journal of General Medicine, 14, 6677–6691. https://doi.org/10.2147/IJGM.S324367

3.Castle, R. D., Williams, M. A., Bushell, W. C., Rindfleisch, J. A., Peterson, C. T., Marzolf, J., Brouwer, K., & Mills, P. J. (2021). Implications for Systemic Approaches to COVID- 19: Effect Sizes of Remdesivir, Tocilizumab, Melatonin, Vitamin D3, and Meditation. Journal of Inflammation Research, 14, 4859–4876. https://doi.org/10.2147/JIR.S323356

rcastle@wholehealth.org

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Yoga therapy: Clinical applications and research pathways for healing

Barbara A Gibson
Barb Gibson Yoga Therapy, USA

Yoga has been shown through research and subjective experiences to improve quality of life, physical, mental, and emotional health, which extends to various populations by age, socioeconomic backgrounds, and cultural groups. As yoga's presence opens into more areas of health care, yoga therapy administered by certified yoga therapists, is now recognized to provide healing and improve quality of life for individuals and groups addressing their specific needs through the application of yogic tools in a clinical setting. Patients are seeking help with specific health conditions, and targeted yogic tools for these conditions can help patients feel better or improve their function. Yogic tools address the whole spectrum of human experience, and thus create an ideal opportunity for a wide range of medical practitioners to enhance patient care through synergizing and coordinating their efforts with yoga therapists. Also, the depth and breadth of yoga research is quickly expanding to not only help yoga professionals hone their skills but provides novel and valuable knowledge to medical professionals of the many benefits yoga brings to patient care. This presentation will introduce yoga therapy, how it works, current ways it is used as a CAM treatment, platforms to conduct yoga therapy, and discuss specific yoga research findings to exemplify current research and how it can expand to future possibilities of yoga research and development.

Recent Publications:

1. Gibson BA, Puymbroeck MV, Fruhauf CA, Schmid AA, Portz JD. Yoga for caregiving dyads experiencing chronic pain: Protocol development for merging yoga and self-management to develop skills intervention. Int J Yoga 2021;14:256-60

barbara_gbsn@yahoo.com

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Acupuncture as an integrative therapeutic modality in rehabilitation medicine: Utilization and mechanisms

Barbara Siminovich-Blok
NYU Langone Medical Center, USA

Statement of the Problem: Integrative Medicine (IM) is an individualized, healing-oriented, inter-professional approach to health and preventative care that applies a whole person philosophy, in the promotion of appropriate therapeutic modalities used to support an individual's long-term health. The use of these modalities, particularly acupuncture, is growing in outpatient and inpatient settings. The field of rehabilitation medicine is well served by these modalities since the pathologies addressed are diverse and treatments need to be individualized. There is a gap in understanding the precise acupuncture mechanism of action. However, many mechanisms have been elucidated and its positive effects support its usage and the need to do more clinical research for acupuncture in PM&R. (Physical Medicine and Rehabilitation).

Methodology & Theoretical Orientation: A literature review of the state of the art in Acupuncture utilization in outpatient and inpatient settings was conducted at NYU Langone Medical Center between the years 2018-2021. Studies such as "Analyzing the Effect of Acupuncture on Mobility and Quality of Life in Multiple Sclerosis" and "Understanding the Cognitive Benefits of Acupuncture for Stroke Recovery Through fMRI" were performed in the context of a PM&R setting. Mechanistic theories to explain acupuncture effectiveness were also reviewed.

Findings, Conclusion & Significance: It is of high importance to understand how a modality like Acupuncture works to be able to take advantage of its full potential. A combination of a mechanistic and a clinical research approach can give us a better context to be able to promote and implement integrative programs in clinical and hospital settings. A thorough understanding of the subject will allow us to extrapolate this highly portable and cost-effective technique to other settings. It is compelling to expand the research efforts in clinical settings beyond the model of PM&RA utilized here.

Recent Publications:

1. Tramontana, Alfonso & Sorge, Roberto & Labate, Angelo & Paz, Esther & Page, Juan & Siminovich-Blok, Barbara. (2017). Evaluating Integrative Approaches for Fibromyalgia in Physical and Rehabilitation Medicine (PM&R). Archives of Physical Medicine and Rehabilitation. 98. e65-e66. 10.1016/j.apmr.2017.08.204.

2. H. I. Karpatkin, D. Napolione, B. Siminovich-Blok, Acupuncture and Multiple Sclerosis: A Review of the Evidence. Evidence-Based Complementary and Alternative Medicine, vol. 2014, Article ID 972935, 9 pages, 2014. https://doi.org/10.1155/2014/972935

drsiminovich@gmail.com

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More life in your years, not just years in your life - healthier choices for a vibrant life

Oksana M. Sawiak
Sawiak Integrative Wellness Institute, Canada

In today's society we have "a pill for every ill" and a medical system that treats symptoms, not causes – that knows more and more about less and less by narrow specializations that are divorced from the whole picture of health. Today in many areas we also have given up our freedom of choice. We take dictation from Health Departments, Governments and Advertisements from Pharmaceutical companies. Early treatment is frequently ignored. Prevention is not stressed. Traditional methods are often vilified. We are living longer but with less quality of life as we succumb to Dementia, MS, Alzheimer's, Arthritis. Knowing which dental, pharmaceutical, surgical or orthopedic treatment choices can make van produce a big difference in the quality of life we have.

drsawiak@drsawiak.com

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Chemical constituents of some medicinal plants from the Peruvian biodiversity

Olga R. Lock Sing
Catholic University of Perú, Perú

Peru possesses 28 of the 32 existing climates in the world and 84 of the 103 life zones known on earth. It is considered one of the 12 megadiverse countries, with a varied flora calculates in approximately 25,000 species. Thus, around 10% of the world's flora grows in Peru and 30% of these plants are endemic. Approximately 5000 Peruvian plants are being used by the population for 49 purposes and applications (1400 species are described as medicinal). Up to date some of them are well known because they have scientific studies mainly phytochemical, and pharmacological and they are cultivated and commercialized in local and international markets, others are still used in base of the traditional medicine. I should say medicinal plants are part of the legacy of Peruvian traditional medicine, a heritage of pre-Columbian cultures. In the lecture we talk about the secondary metabolites present in some of the studied plants such as Cinchona officinalis, Uncaria tomentosa, Lepidium meyenii, Croton lechleri, Smallanthus sonchifolius, Pluckenetia volubilis, Gentianella nitida, Werneria ciliolata and others. In these plants we will find many types of secondary metabolites, as we know through the chemotaxonomy different family of plants contain different kind of them.

Recent Publications:

1. Lock, O., Flores, D. (2020) Peruvian Biodiversity: A mini review of five plants. Journal of Natural & Ayurvedic Medicine. Doi:10.23380/jonam-16000276.

2. Lock, O., Rojas, R. (2019) Phytochemistry and biological activities of Werneria and Xenophyllum species, Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas, BLACPMA 18, 223- 238.

3. Lock O, Perez E, Villar M, Flores D, Rojas R. Bioactive Compounds from Plants Used in Peruvian Traditional Medicine. Nat Prod Commun. 2016 Mar;11(3):315-37. PMID: 27169179.

4. Cioffi, G., Montoro, P., Lock O., Vasallo, A., Severino, L., Pizza, C., Tommasi, N., (2011). Antioxidant bibenzil derivatives from Notholaena nívea Des. Molecules 16, 2527-2541. ISSN 1420-3049.

olock@pucp.edu.pe

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Aromatherapy for overload and fatigue in family caregivers of the elderly at home: Pilot study

Souza TPB[1], Castro MF[2], Turrini RNT[2], Hashimoto THF[3], Tartarotti AO[3], Sichieri K[3], Damato JRG[2]
[1] Santa Casa de São Paulo School of Medical Sciences, Brazil
[2] University of São Paulo, Brazil
[3] University of São Paulo Hospital, Brazil

Problem statement: Demographic and epidemiological changes in the world reflect an increasingly aging population, with chronic non- communicable diseases in need of caregivers. Caregivers experience stress due to routine care, which can generate overload, psychiatric symptoms, fatigue, medication use due to the absence of family support, making them vulnerable to depression and imbalance in personal life. The objective of this study was to identify the main nursing diagnoses of elderly people cared for at home by family members and to verify the impact of aromatherapy with lavender, sweet orange and bergamot essential oils, in a total concentration of 2%, on caregivers' overload and fatigue, through the Zarit-reduced and Piper-revised scales, comparing the effect of two routes of administration: inhalation and cutaneous.

Methodology: This is a pilot, quasi-experimental study, with a quantitative and qualitative approach, carried out with 23 caregivers of elderly people assisted by the Home Care Program of a University Hospital.

Results: All patients had "impaired physical mobility", "fall risk" and "deficit for self-care" and all caregivers presented "Tension in the role of caregiver" as nursing diagnoses. There was a statistically significant difference between the groups for "Impaired verbal communication" (p=0.040), more frequently in the cutaneous group. Temporal perceptions of fatigue reduced throughout the study for both groups, however, there was no statistical evidence of a decrease in overload or fatigue, regardless of time and groups. Qualitatively, caregivers reported that fatigue is associated with excess responsibility, routine and health conditions of the family member.

Conclusion & Significance: Attenuations of overload and fatigue were observed in the inhalation group, without statistical evidence. Further studies with a larger number of samples are recommended, aiming to achieve lower levels of overload and fatigue, since, in addition to the biopsychic benefits, there is a stimulus to autonomy and self-care of family caregivers at home.

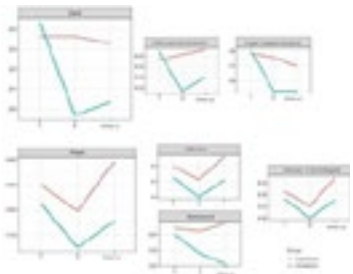

Figure 1. Mean scores for caregiver burden (Zarit), fatigue (Piper) and relationship and domains in the groups in the cutaneous and inhalation groups, according to assessment moments. Sao Paulo, 2022

talita.pavarini@gmail.com

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Piperlongumine based herbal approach for osteosarcoma treatment

Vijayashree Nayak and **Laxminarayan Rawat**
Birla Institute of Technology and Science-Pilani, India.

Statement of the Problem: The challenges in the cancer treatment increasing due to complexity and therapy resistance in the cancer. The current treatment modalities impose unbearable side effects like heart failure, dysfunction of vital organs and re-occurrence of secondary cancer. Researchers are working on the alternative therapies for the cancer but due to several subtypes of cancer it is very difficult to find a broad-spectrum therapy with low or nil side effects. Nowadays, researchers exploring the ancient or traditional medicines, for the treatment of several diseases including cancer. The herbal medicines like piperlongumine have proven their effects on the several cancers. In this study, we have explored their effects on osteosarcoma.

Methodology & Theoretical Orientation: A multi-parametric experiments were designed to evaluate the therapeutic efficacy of the piperlongumine on intestinal cancer. The cytotoxicity, apoptosis, ROS, nuclear toxicity were evaluated by standard experiments. Moreover, realtime PCR was performed to find the gene expression pattern. The effects of combination of piperlongumine and current chemotherapeutic drug doxorubicin were also evaluated in-vitro.

Findings: The cytotoxicity of PL was determined by MTT assay, which shows dose and time-dependent inhibition of MG-63, 143B and KHOS/NP cells. PL treatment elevates the ROS production, which possibly leads to lethal oxidative stress and this resulted in significant apoptosis and G2/M phase arrest. At the molecular level, PL treatment significantly upregulated the expression of genes BAX, P21, P53, and SMAD4; while the BCL-2, SURVIVIN, TNFA, and NFKB genes expression was down-regulated. Furthermore, PL treatment inhibited the migration of OS cells as the expression of migration marker genes CDH2, CTNNB1, FN1, and TWIST were found to be down-regulated. The drug combination studies show synergistic effect of PL with the conventional chemotherapeutic drug doxorubicin in OS cells.

Conclusion & Significance: The piperlongumine proved to be a strong anticancer drug with comparable doses with standard chemotherapy drug. The above results suggest that PL displays strong anticancer properties against osteosarcoma and can be used as a therapeutic drug or as a complementary medicine for OS treatment in clinical settings.

Figure 1: The Piperlongumine responsive mechanisms of apoptosis

Recent Publications:

1. Rawat L, Nayak V. Piperlongumine induces ROS mediated apoptosis by transcriptional regulation of SMAD4/P21/P53 genes and synergizes with doxorubicin in osteosarcoma cells. Chem Biol Interact. 2022 Feb 25;354:109832. doi: 10.1016/j.cbi.2022.109832. Epub 2022 Jan 24. PMID: 35085581. (Accepted in chemico-biological interactions).

2. Rawat L, Nayak V. Ursolic acid disturbs ROS homeostasis and regulates survival-associated gene expression to induce apoptosis in intestinal cancer cells. Toxicol Res (Camb). 2021 Apr 12;10(3):369-375. doi: 10.1093/toxres/tfab025. PMID: 34141150; PMCID: PMC8201588.

3. Rawat L, Hegde H, Hoti SL, Nayak V. Piperlongumine induces ROS mediated cell death and synergizes paclitaxel in human intestinal cancer cells. Biomed Pharmacother. 2020 Aug;128:110243. doi: 10.1016/j.biopha.2020.110243. Epub 2020 May 27. PMID: 32470748.

vijayashree@goa.bits-pilani.ac.in