



Abstract Book

SETAC Latin America 14th Biennial Meeting
Latin America, Diversity of Knowledge for a Sustainable Future

26-29 SEPTEMBER 2021 • VIRTUAL

Abstract Book

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This book comprises the abstracts of the presentations for the platform and poster sessions of the Society of Environmental Toxicology and Chemistry (SETAC) Latin America 14th Biennial Meeting, conducted virtually from 26–29 September 2021. The abstracts are reproduced as accepted by the Scientific Program Committee and appear in numerical order. In each abstract, the presenting author’s name is underlined. The author index cross-references the corresponding abstract numbers.

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About SETAC

The Society of Environmental Toxicology and Chemistry (SETAC), with offices in North America and Europe, is a nonprofit, professional society established to provide a forum for individuals and institutions engaged in the study, analysis and solution of environmental problems, the management and regulation of natural resources, environmental education, and research and development.

Specific goals of the society are:

- Promote research, education and training in the environmental sciences
- Promote the systematic application of all relevant scientific disciplines to the evaluation of chemical hazards
- Participate in the scientific interpretation of issues concerned with hazard assessment and risk analysis
- Support the development of ecologically acceptable practices and principles
- Provide a forum (meetings and publications) for communication among professionals in government, business, academia and other segments of society involved in the use, protection and management of our environment

These goals are pursued through the conduct of numerous activities, which include:

- Conduct meetings with study and workshop sessions, platform and poster presentations, and achievement and merit awards
- Publish scientific journals, a newsletter and special technical publications
- Provide funds for education and training through the SETAC Scholarship/Fellowship Program
- Organize and sponsor chapters and branches to provide a forum for the presentation of scientific data and for the interchange and study of information about local and regional concerns
- Provide advice and counsel to technical and nontechnical persons through a number of standing and ad hoc committees

SETAC membership currently comprises about 5,300 individuals from government, academia, business and nongovernmental organizations with backgrounds in chemistry, toxicology, biology, ecology, atmospheric sciences, health sciences, earth sciences, environmental engineering, hazard and risk assessment, and life cycle assessment.

If you have training in these or related disciplines and are engaged in the study, use or management of environmental resources, SETAC can fulfill your professional affiliation needs.

All members receive the SETAC Globe newsletter highlighting environmental topics and SETAC activities, reduced fees for meetings and discounts on SETAC books. All members receive online access to *Environmental Toxicology and Chemistry* (ET&C) and *Integrated Environmental Assessment and Management* (IEAM), the peer-reviewed journals of the society. Members may hold office and, with the Emeritus Members, constitute the voting membership.

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Environmental Quality Through Science

Antarctica's ecosystem health, taking this into consideration, feces were sampled at colonies of Adelie, Chinstrap and Gentoo penguins near the O'Higgins Antarctic Base during austral summer of 2009. Samples were taken with the utmost care to avoid stress to the penguin colonies and nesting chicks. Fresh stool samples were collected from five nests for each penguin species. The results showed the presence of eleven pesticides, with Hexachlorobenzene (HCB) present in all samples followed by DDE and HCH isomers, Methoxychlor occurring in the highest concentration only present in 5 samples. Gentoo and chinstrap penguins presented the highest concentration of pesticides, while Adélie presented de lower values, which is explained by their different diets (carbon sources) and food web position, this was also shown by the results of isotopes analysis that showed a higher position for Gentoo and a lower position for Chinstrap and Adélie and Chinstrap, that have a similar carbon source.

06A.24 Effects of *Satureja Montana* L. Hydrolate on Freshwater Benthic Algal Communities and Its Microbiological Impact

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Satureja montana L. , commonly called winter or mountain savory, is a bushy perennial subshrub with woody stems at the base, small linear leaves, pale pink and white flowers. *S. montana* essential oil (EO) has pharmacological properties as antimicrobial, antifungal, antioxidant, antispasmodic, antiviral and antidiarrheal. In addition, this EO shows plant protection properties, including insecticidal and fungicidal. This study focused on the aqueous extract (hydrolate) of *S. montana*. Hydrolates have been considered by-products of the hydrodistillation process when obtaining essential oils, but, recently, interesting properties, that point to possible commercial and clinical uses (such as biopesticides or synergistic combinations with antibiotics), have been discovered. However, there are not complete studies on the micro and ecotoxicity of *S. montana* hydrolates available so far. The objective of this study is to analyze the ecotoxicity of *S. montana* hydrolate in non-target aquatic organisms using natural river communities of Periphyton, a complex community composed of algae, bacteria, fungi, protozoa and invertebrates that can be used as indicators of water quality. In these tests, an artificial fluvial microcosm system was designed consisting of a series of artificial channels where river conditions are simulated. The periphyton communities were obtained in methacrylate supports from the river Gállego (tributary of the Ebro River). The following concentrations of hydrolate were incorporated to the channels: 1000, 100, 10, 1 and 0.1 mg/L. and the effect on the photosynthetic yield was measured. The dose-effect curve allowed to calculate the LC values: LC₅₀=4.79 mg/L (4.17-5.46) and LC₁₀= 0.69 mg/L (0.51-0.88) of hydrolate. Furthermore, the microbiological impact of the main components of *S. montana* aqueous extract, carvacrol and thymol, was assessed in a battery of gram-positive and gram-negative bacteria. These results help us to better understand the impact that plant hydrolates can cause to the environment and help in making decisions when giving them commercial and clinical use. *The authors thank the financial support of Gobierno de Aragón-FSE-FEDER " Construyendo Europa desde Aragón" (Grupo E39_17R y RIS3 LMP28_18) and Catedra NOVALTIA.*

06A.25 Toxicity Assessment of Acetylsalicylic Acid Using *Saccharomyces cerevisiae*

F. Tominaga, IPEN-CNEN/SP / CETER (Center Technology of Radiation); P. Léo, Institute for Technological Research IPT / Laboratório de Biotecnologia Industrial; S.I. Borrelly, Instituto de Pesquisas Energéticas e Nucleares / Centro de Tecnologia das Radiações Urban and industrial growth has triggered the release of toxic compounds into the environment, causing negative impacts on the population and ecosystems. Among the pollutants, pharmaceuticals have drawn attention due to potential of impacting the environment at ecological relevant concentrations. Aspirin is widely used in human medicine as an analgesic, antipyretic and in actively preventing platelet aggregation, and it is frequently detected in influent samples at relatively high concentrations. The yeast *Saccharomyces cerevisiae* consists in simple eukaryotic model, widely used for toxicity assessment. The current study aims to evaluate the toxicity of the anti-inflammatory acetylsalicylic acid (aspirin) using viability and conductometric assays. The viability assays were based on the evaluation of the number of viable cells present in a cell suspension after 1 hour exposure, while the conductometric tests were done by monitoring of changes in the specific conductivity of suspensions of *S. cerevisiae* due to inhibition of fermentation in toxic conditions after 30 minutes of exposure. The viability tests showed no reduction of viability at the evaluated concentrations (up to 100 mg L⁻¹). The conductometric assays demonstrated low sensibility of the yeast to aspirin with EC₅₀_{30min} of 815 mg L⁻¹. The results also indicated that there was no increase in the sensitivity of conductometric assays even at 6 hours of exposure. Furthermore, the acute toxicity data was compared with data obtained from *in silico* toxicity models (ECOSAR). Toxicity data collated from the software from different trophic levels showed EC₅₀_{96h}, LC₅₀_{48h} and LC_{96h} of 867, 1774 and 777 mg L⁻¹ for green algae, daphnid and fish, respectively, indicating low toxicity of aspirin.

06A.26 Phytoremediation Capacity of Ciprofloxacin and Sulfametoxazol in Two Free-Floating Aquatic Macrophytes

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Water contamination by antibiotics is an emerging global problem, with impacts on both public health and the environment. In view of this scenario, the development of technologies able to mitigate water contamination is urgent and phytoremediation has emerged as a good approach. Here, we evaluated the capacity of the free-floating aquatic macrophytes *Lemna minor* and *Salvinia molesta* to reclaim the antibiotics sulfametoxazol (Sulfa) and ciprofloxacin (Cipro) from water. Plants were exposed to isolate and combined environmental representative concentrations of Cipro (0 and 1.5 µg l⁻¹) and Sulfa (0 and 0.3 µg. L-1) for seven days. *S. molesta* showed higher removal capacity of Cipro (47.50%±6.7) and Sulfa (43.12%±7.20) than *L. minor* (26.97%±4.61 and 30.82%±8.89, respectively) when the antibiotics occurred alone in the water. The uptake of Cipro by plants was decreased in 5.53% and 7.38% in *L. minor* and *S. molesta*, respectively, when Sulfa was present in the water. The uptake of Sulfa, however, was not affected by the Cipro presence. Although both species reclaimed Cipro and Sulfa from water, *S. molesta* is a better option for phytoremediation programs than *L. minor*. Moreover, our data indicate that the simultaneous occurrence of different xenobiotics in water can affect plant removal capacity. Therefore, it is important to consider the occurrence of various contaminants in water when evaluating the remediation capacity of plant species.

06A.27 Does the Guanitoxin-Producing Strain ITEP-024 Affect the

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