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ANÁLISIS DE ÁCIDOS GRASOS Y ESTEROLES DEL LÍQUEN *EVERNIOPSIS TRULLA*



Full original article

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Keywords: *Fatty acids, Sterols, Everniopsis trulla, Gas chromatographic.*

Palabras clave: *Ácidos grasos, Esteroles, Everniopsis trulla, Cromatografía de gases.*

ABSTRACT

In the present work a chromatographic analysis of lichen *Everniopsis trulla* was carried out, which was collected in the department of Ancash, province of Asunción. A gaseous chromatographic analysis was carried out, which allowed us to identify the fatty acids and sterols, for which an organic extract was made, applying a classical method. A rapid method was applied to identify other compounds. These two methods, 19 fatty acids, 4 sterols, 15 lipid compounds (esters, alcohols, alkanes, etc.) were identified.

trout collected in the province of Huancané they are: Zn (14.30 ± 3.48 mg / kg); Se (1.27 ± 0.34 mg / kg); Al (0.76 ± 0.15 mg / kg); Ca (663.33 ± 170.10 mg / kg); Na (1733.33 ± 513.16 mg / kg); Mg (586.67 ± 15.28 mg / kg); K (11000.00 ± 0.00 mg / kg); Mn (0.16 ± 0.06 mg / kg) and P (5300.00 ± 264.58 mg / kg) these do not exceed the maximum permissible limits, so they constitute an important source of protein, in addition to the two fatty acids Essential omega-3s known as DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid) and vitamins, so that rainbow trout (*Oncorhynchus mykiss*) from the evaluated areas are suitable for human consumption, because they do not exceed the maximum limits permissible levels of the chemical elements analyzed.

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SYNTHESIS AND SIZE ESTIMATION OF SILVER NANOPARTICLES, BY REDUCTION WITH AQUEOUS EXTRACTS OF CALYCES LEAVES AND SEEDS OF *HIBISCUS SABDARIFFA* LINN: PROMOTION OF GREEN SYNTHESIS

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Short Report

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Keywords: *Nanoparticles, Reduction, Hibiscus sabdariffa, Green Synthesis, Polyphenols.*

Palabras clave: *Nanopartículas, Reducción, Hibiscus sabdariffa, Síntesis Verde, Polifenoles.*

ABSTRACT

The synthesis of silver nanoparticles (AgNPs) has had a positive impact on biomedical sciences, thanks to its diverse biological potentialities, among which its antimicrobial activity and in vitro interaction with various chemotherapeutic drugs stand out. The study aimed at the synthesis of AgNPs, using aqueous extracts of calyces, leaves and seeds of an organic cultivation of *Hibiscus sabdariffa* and a solution of silver nitrate (AgNO₃). The concentration of total phenolic compounds and flavonoids was determined for each extract, by the methods of Folin-Ciocalteu and Marinova respectively, this with the purpose of guaranteeing the quality and content of compounds with reducing capacity. AgNPs synthesis conditions were optimized, referring to AgNO₃ volume and concentration, extract volume (calyces, leaves and seeds), pH, heating time and temperature, using the statistical program StatGraphics. The analyzes yielded a concentration of 17.42 ± 0.12 mg GAE / g (calyces), 9.03 ± 0.91 mg GAE / g (leaves) and 11.32 ± 0.36 mg GAE / g (seeds). The maximum absorption peaks were obtained at 424 nm for all the three extracts, with absorbances of 1.5240±0.32=30-32 nm (AgNPs-calyces), 0.5674±0.24=12-14 nm (AgNPs-leaves) and 0.764 ±0.18=18-20 nm (AgNPs-seeds). The findings of the study are related to the variation of phenolic compounds in the different parts of *H. sabdariffa*, which conditions the synthesis performance of AgNPs. The present study represents a valuable contribution in the "Green Synthesis", representing the first study in Venezuela in which AgNPs are synthesized from *H. sabdariffa*.

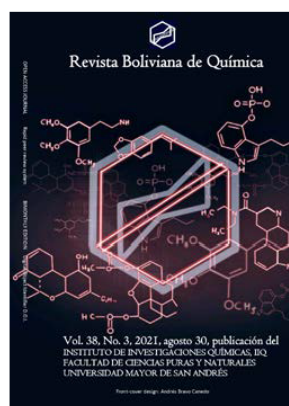


BIOSORPTION OF LEAD(II) IONS BY DEAD BACTERIAL BIOMASS ISOLATED FROM MINE WATER

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Keywords: *Biosorption, Lead, Bacterial biomass*

Palabras clave: *Biosorción, Plomo, Biomasa bacteriana*

ABSTRACT

Lead and its different chemical forms have been widely used in industry over the past years and the result is the high pollution detected in water and soil environments. Lead (II) resistant microorganisms were isolated from liquid samples collected from Mina Asientos, Cochabamba-Bolivia. Eleven strains were isolated in solid media with 200 ppm Pb(II) and 4 strains were selected for metal removal in liquid samples. One strain presented the highest Pb(II) removal values for 250 ppm Pb(II). The selected strain designated as MA-4 was subjected to phylogenetic studies and showed 99.9 % sequence similarity with *Pseudomonas monteilii*. The biosorption follows Langmuir and Freundlich isotherm models, with q_{max} and K_F values of 166.67 and 11.09, respectively. These results implied a strong binding capacity to dead biomass and its potential application in biosorption process.

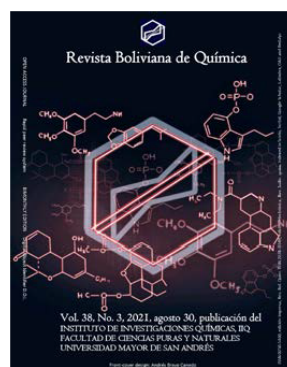


ANÁLISIS MULTIVARIANTE EN LA CLASIFICACIÓN DE SUELOS PARA LA AGRICULTURA EN EL VALLE Y ALTIPLANO BOLIVIANO

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Keywords: *Statistical assessment, Soils, Discriminant and factorial analysis*

Palabras clave: *Evaluación estadística, Suelos, Análisis discriminante y factorial*

ABSTRACT

The soil is one of the most important resources for life on the planet. In that sense, this study proposes a discriminant and factorial analysis of the chemical parameters in different soils. The assessment of eleven physicochemical parameters was carried out in soil samples from two communities: Yamora and Viacha, both located in La Paz (Bolivia), and both with different soils characteristics, as a basis for the classification of soils for its use in agriculture. It was found that the discriminant function is represented by five parameters: Nitrogen, Phosphorus, Na⁺, K⁺ and Mg²⁺ contents. The factorial analysis shows that the main components are functions of two groups of parameters, one with a positive correlation and the other with a negative correlation. These functions allow the characterization of the soils and their chemical fertility.