

**Sociedad de
Biología de Cuyo**

**XXXVII Reunión
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Ciencia



Educación

**Investigación
y Ambiente**

Integración

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Libro de Resúmenes

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Porophyllum obscurum belongs to the Asteraceae family and is a native herb or sub-shrub, perennial and gynodioecious species. In Argentina it is distributed from the north to the center of the country and it can be found in Uruguay, Paraguay and Brazil too. Its name derives from the Greek “porus” that means pore and “phyllon” that means leaf, in reference to the leaves glands present in much of the genus species. It is commonly known as “deer grass” due to the strong smell, similar to deer meat, which is produced by the aromatic oils emitted when plants are stepped on the field or their leaves are scrubbed. It has diaphoretic and antispasmodic properties. Loma Blanca del Morro is a grassland and mountain range area, with stony soil and rainfall between 500 and 600 mm per year. In general, deer grass grows on dry, sandy, saline or stony soils. Deer grass large populations were not observed at the sampling site, probably due to medicinal herbs connoisseurs’ extraction. In order to preserve this species, the specimen’s phenology and morphology were recorded in the field and in the laboratory methods of sexual and asexual propagation were tested. Two populations were identified so that two sampling sites were determined, (1) “the hill” at a higher height and with a greater proportion of rocks and (2) “the bottom” at a lower height and with a greater proportion of soil. In “the bottom” 6 plants per m² were registered for the first transect and 20 plants per m² for the second, in “the hill” 6 plants per m² were registered in both transects. The specimens in site reach a height ranging from 5 to 12 cm. The leaves are linear, up to 4 cm in length. It begins to bloom at the end of October, full bloom is observed at the end of November and it continues to bloom and bear fruit until the end of April. In the laboratory tests to evaluate the sexual propagation, the fruits were selected for sowing, obtaining a germination value of 70%. Those harvested at “the bottom” site showed greater germination power both in the Petri dishes sowing and in the site substrate. For the purpose of vegetative multiplication evaluation, herbaceous and semileinous cuttings were made, and both types were treated with different rooting hormones obtaining a low percentage of survival.

253. PRELIMINARY INVENTORY OF FERNS FROM NORTHEAST OF CATAMARCA

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In the following work we present a preliminary inventory of Ferns of the Northeast of Catamarca Province which has been little studied. In order to carry out this study, collections were made in areas adjacent to Guayamba (28°20'35.6"S 65°24'12.2"W, 1150 m.a.s.l.), El Alto (28°16'08.5"S 65°19'06.5"W; 850 m.a.s.l.), The Paclín Tunnels (28°06'51.9"S, 65°38'14.8"W, 1100 m.a.s.l.), Cuesta del Totoral (28°07'24.0"S, 65°37'54.4"W, 1200 m.a.s.l.), Alijilan (28°10'18.4"S, 65°31'26.2"W; 600 m.a.s.l.), Allpatauca Biosphere Reserve (28°25'05.6"S, 65°41'29.4"W; 550 m.a.s.l.), Las Juntas (28°04'38.1"S, 65°54'24.9"W; 1450 m.a.s.l.), *Podocarpus* Forest (28°07'42.4"S, 65°54'41.1"W; 1750 m.a.s.l.), El Rodeo (28°12'06.7"S, 65°51'40.5"W; 1200 m.a.s.l.), Quebrada El Tala (28°26'40.6"S 65°50'48.9"W; 950 m.a.s.l.) and Los Angeles (28°33'50.2"S, 65°57'25.0"W; 1100 m.a.s.l.). The study was carried out in vegetation units that correspond to the Chaco Phytogeographic Domain (Serrano Chaco and Arid Chaco), the Amazon Domain (Mountain Jungle, Mountain Forest and Tall Grassland) and the Phytogeographic Domain of Neotropical Seasonal Dry Forests (Pedemontana Jungle), including ecotonal areas. 39 species distributed in 19 genera and 10 families were registered. The families with the highest species richness are Pteridaceae and Polypodiaceae (20 and 5 species, respectively). Considering all species, 12 new citations were found, which are not listed in the Argentine Flora. These are: *Adiantum chilense*, *Asplenium praemorsum*, *Asplenium resiliens*, *Argyrochosma nivea* var. *flava*, *Argyrochosma nivea* var. *tenera*, *Azolla filiculoides*, *Cheilanthes hypoleuca*, *Doryopteris concolor*, *Doryopteris lorentzii*, *Pleopeltis bryopoda*, *Pellaea ovata* y *Serpocaulon gilliesii*. This preliminary result offers valuable information about the richness of these plants. On the other hand it will allow future studies to deep in the knowledge of Ferns in the several biomes of Catamarca Province.

254. CHEMICAL CHARACTERIZATION AND BIOLOGICAL ACTIVITIES OF *Tessaria absinthioides* (HOOK. & ARN.) DC. (ASTERACEAE) DECOCTION

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The decoction of *Tessaria absinthioides* is used in traditional medicine of South America as a hypocholesterolemic, balsamic, and expectorant, it is also useful for the prevention of hepatitis, renal insufficiency, diabetes and used as digestive. A lyophilized decoction from the aerial parts of this plant collected in San Juan (TLDSJ) and Mendoza (TLDM) provinces (Argentina) and one collection from Antofagasta, Chile (TLDCH), were evaluated regarding antioxidant activities, phenolics and flavonoids content and UHPLC-MS metabolome fingerprinting which revealed the presence of several small bioactive compounds. The antioxidant properties were evaluated by free radical scavenging methods (DPPH and TEAC), ferric-reducing antioxidant power (FRAP) and lipoperoxidation in erythrocytes (LP). The antibacterial activity was evaluated according to the Clinical and Laboratory Standards Institute (CLSI) guidelines. TLDSJ, TLDSJ and TLDCH displayed a strong DPPH scavenging activity (IC₅₀ = 42, 41.6 and 43 µg/mL respectively) and



inhibition of lipoperoxidation in erythrocytes (86-88 % at 250 µgTLD/mL), while a less effect in the FRAP and ABTS antioxidant assays were found. Additionally, the decoctions showed a content of phenolics compounds of 94 mg GAE/g, 185 GAE/g and 64 GAE/g, for TLDSJ, TLDM TLDCH samples respectively. Regarding the flavonoid content, the Chilean sample was highlighted with 19 mg QE/g. In this work thirty phenolics compounds including sesquiterpenes, flavonoids, and phenolics acids were rapidly identified in TLDSJ, TLDM and TLDCH decoctions by means of ultrahigh resolution liquidchromatography orbitrap MS analysis (UHPLC-PDA-OT-MS) for the first time, which support that the medicinal decoction from both countries is a valuable natural product with antioxidant effects and with potential to improve human health. Additionally, this research opens a pathway for the development of important phytomedicine products. Authors are grateful to CICITCA-UNSJ, and U Austral de Chile

255. CHEMICAL CHARACTERIZATION FREE RADICAL SCAVENGING AND ANTIBACTERIAL ACTIVITY OF *Zuccagnia punctata* CAV (FABACEAE) EXUDATE

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The resins are nonvolatile products of plants, exude naturally (surface resins) or can be obtained by incision or infection (internal resins). Their chemical composition including flavonoids, terpenoids, and fatty substances is in some cases a protective barrier for the plant against the attack of some herbivores. A limited number of families including Fabaceae, Burseraceae, and Pinaceae stand out for their high resin production. Argentina's Andean region is the habitat of plant species belonging to the genera *Larrea*, *Zuccagnia*, and *Bulnesia* recognized for their high production of resins or exudates, of which there is a lack of knowledge about their potential as sources of compounds of agronomic and industrial interest. A dichloromethane exudate (DCME) obtained by dipping of fresh aerial parts from *Z. punctata* was evaluated regarding their antioxidant, antibacterial and UHPLC-MS metabolome fingerprinting. The antioxidant properties were assayed by DPPH, TEAC, FRAP and lipoperoxidation inhibition in erythrocytes methods and the antibacterial activity according to the Clinical and Laboratory Standards Institute (CLSI) guidelines. The DCME showed a stronger free radical scavenging activity on DPPH radical (IC₅₀ = 25 µg/mL) and inhibited the lipid peroxidation in erythrocytes in 70%, at 250 µg/mL. The DCME was active against Gram (+) and Gram (-) bacteria (MICs values between 125-250µg/ml). Forty-seven compounds were detected and identified based on the UHPLC OT-MS including, chalcones, dihydrochalcones, flavones, flavanones, nine correspond to flavonoids, thirteen to caffeic acid ester derivatives. Several compounds are first reported for this species. The results support that *Z. punctata* exudate is a valuable natural product with the potential to improve human health and industrial interest. Authors are grateful to CICITCA-UNSJ, and U Austral de Chile

256. MORPHOLOGICAL CHARACTERIZATION OF RECENT POLLEN GRAINS FOR THE COMPARATIVE STUDY WITH FOSSILS AND ITS IMPLICATIONS IN *Ephedra* L. (GNETALES) DIVERSITY

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Many authors agreed that the study of recent pollen grains contribute to the taxonomy of some vegetal groups. By other side, the comparative studies with fossil pollen grains had allowed to reconstruct paleoflora and paleoclimates. The primary objective of this work was to analyze pollen grains of recent South American species of *Ephedra* and to compare them with fossil pollen grains recovered from La Cantera Formation in San Luis province (Early Cretaceous) that were assigned previously to this group. The pollen grains were removed of specimens deposited in a herbarium and stained with basic fuchsin. A minimum of 20 pollen grains were studied per sample, using a light binocular microscopy (1000 x) and were compared with the fossil palynomorphs. Fossil palynological samples used were located in the paleopalynological collection from IANIGLA CCT from Mendoza. The analysis showed that both morphological and morphometric characters of the grains were uniform in each of the recent species and did not correspond to individual differences. The main shared characters between species were: ellipsoidal to fusiform shape and polypllicate sculpture. These results support the previous idea that the great diversity in morphology and size of pollen grains assigned to *Ephedra* and recorded in La Cantera Formation indicating the presence of several species or even several genera in this association. This example shows a case where the study of recent species gives an important support to infer the diversity of species that lived in the past.