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Phenolic composition and antioxidant activity of *Tristerix aphyllus* (Loranthaceae), a parasite from native Cactaceae in northern Chile

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Plants of desert and semi-desert climate live under harsh environmental stress conditions. Water shortage, strong radiation, extreme temperature variations and poor soil are factors accounting for natural selection pressures, leading to unique plant-plant relationships. The Chilean endemic mistletoe *Tristerix aphyllus* (Miers ex D.C.) van Tiegh. ex Barlow et Wiens, is a holoparasite of Cactaceae, including *Echinopsis* and *Eulychnia* species¹. It is known under the common name "fosforito" and it is long shaped and red colored². The objective of this work was to describe the main phenolic constituents and the antioxidant potential of the plant extractives. A sample of *T. aphyllus* was collected in the IV Region of Coquimbo, Chile, growing as a parasite on *Eulychnia acida*. The antioxidant activity of the methanolic extract was assessed for its ability to scavenge DPPH and ABTS radicals, and its ferric reducing antioxidant power (FRAP). An HPLC-DAD-MS/MSⁿ method was developed for phenolic profiling. High total phenolic content (14.66 ± 0.11 g gallic acid equivalents/100 g MeOH extract) and total flavonoid content (1.79 ± 0.10 g quercetin equivalents/100g MeOH extract) were found in the sample. Scavenging activity against DPPH radical of the crude extract was similar than that of the positive control quercetin (SC₅₀ 9.17 and 7.82 µg/mL, respectively). The main phenolic compounds were identified as quercetin derivatives. This is the first report of the phenolic composition of *T. aphyllus*, and set the basis for further studies, including a comparison of constituents according to the host and more specific environmental conditions.

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References: [1] Kraus R. (1995): 82, 150-151. [2] Medel et al. (2002). Rev. Chil. Historia Natural 75, 127-140.

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Anti-inflammatory activity of Copao fruits (*Eulychnia acida* Phil., Cactaceae)

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Copao (*Eulychnia acida* Phil., Cactaceae) is an endemic species occurring in arid areas of northern Chile. The fruits are commercialized within the Elqui and Limari valleys, and are appreciated for its refreshing and acidic taste. A comparison of the anti-inflammatory effect of the enriched fruit phenolics from the pulp and epicarp was undertaken in samples from the Elqui and Limari valleys, main sources of supply and commercialization of the fruits. The anti-inflammatory activity of the XAD-copao extracts was assessed by the inhibition of the pro-inflammatory enzymes lipooxygenase (LOX) and cyclooxygenase (COX-1 and COX-2) *in vitro* at 100 µg extract/mL. The inhibitory capacity of LOX by extracts from the Limari valley was between 1.46-64.3% for pulp and 23.0-

35.6% for epicarp. The COX-2 inhibition afforded values of 20.2-57.6% for pulp and 0-44% for epicarp. The COX-1 was not inhibited. For the Elqui valley samples, LOX inhibition ranged between 34.4-38.4% for pulp and 3.3-33.8% for epicarp. The COX-2 inhibition was between 0-27% for pulp and 1.1-39.9% for epicarp. The COX-1 inhibition ranged between 0-43% for pulp and 0-15.1% for epicarp. The main flavonoids found in this fruit are isorhamnetin-3-O-[α -rhamnopyranosyl-(1 \rightarrow 6)- β -glucopyranoside] and quercetin-3-O-rutinoside¹. Positive correlation was found between the anti-LOX activity and the content of rutin in pulp ($R=0.8235$, $p<0.05$) and epicarp ($R=0.9120$, $p<0.05$). Also, the anti-COX-2 activity and the content of isorhamnetin in epicarp showed a positive correlation ($R=0.9422$, $p<0.01$). The anti-inflammatory activity of isorhamnetin and rutin have been reported^{2,3}. The findings add value to the fruits as nutraceuticals.

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Ethnobotanical survey of medicinal species in Nossa Senhora Aparecida farm, Santa Barbara D'Oeste city, São Paulo State, Brazil

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In the domains of Nossa Senhora Aparecida farm, located in the rural neighborhood of Santa Barbara D'Oeste city, in Northwest of the state of São Paulo, there are remnants of Atlantic Forest. This is one of the biomes with greatest biodiversity in the world, presenting an enormous variety of plants species. Many of them are considered medicinal plants and are used by the farm owner Rosivaldo Pereira Santos, who is an indigenous descendant and has a rich knowledge of the use of these plants. As many species are not properly identified, there is need of a survey, aiming to document the identity and way of use of the crude drugs in a modern scientific context. Through this project an ethnobotanical survey was performed in which 146 species indicated as medicinal by Mr. Santos were documented and identified. The plants belong to 55 botanical families, being Asteraceae and Fabaceae most representative. The project presents the therapeutic indications and information about the used parts of the medicinal plant. Brazilian species such as *Solidago chilensis* Meyen (Asteraceae) and *Varronia curassavica* Jacq. (Boraginaceae) are in the survey. Ethnobotanical studies contribute to the management and conservation of natural resources [1], then it is expected that the results obtained will serve as a stimulus for further studies about the chemical constituents and pharmacological properties of the Brazilian medicinal plants, increasing the use of these species and encouraging its cultivation.

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Reference: [1] Albuquerque, U.P., (2005), Introdução à Etnobotânica, XIV.