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CALAFATE (*BERBERIS MICROPHYLLA* G. FORST), THE CHILEAN BERRY: UNVEILING ITS POTENTIAL

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Berries are fruits characterized by being coloured and flavoured with high anthocyanins contents which provide beneficial properties to human health. Chile produces several berries and one of this is calafate (*Berberis microphylla*). There are few reports about this native species that grows as a wild crop from Aysen and Magallanes (in the Patagonia), although it is possible to find it under a wide range of ecological conditions. Its fruits are an intense purple berry with high polyphenol contents. It has been determined that calafate possesses 18 anthocyanins derived from glycosylated delphinidin, petunidin, malvidin, peonidin and cyanidine. Many of them are associated with health beneficial effects. The uptake of sources of polyphenols ensures the scavenge of free radicals and also increases cognitive properties and prevents or reduce the risk of neurodegenerative diseases. In recent years, it has been proven that fruits rich in antioxidants such as calafate, could prevent and counteract neurodegenerative deterioration, considering functional against these diseases. The inhibition of acetylcholinesterase enzymes (AChE) is an indicator of neurotransmitter function in diseases such as Parkinson's and Alzheimer's disease. The polyphenolic profile of calafate analyzed through HPLC-DAD and the antioxidant capacity by different assays was studied. Delphinidin-3-O-hexoside, petunidin-3-O-hexoside and malvidin-3-O-hexoside were found in calafate as major

compounds. The antioxidant capacity tests revealed high values for this berry. The main compounds and characteristic composition of calafate provide biological activity and potential antioxidant capacity. *In vitro* tests, Ellman esterase assay have been carried out to confirm the reaction capacity of calafate extracts in the action of cholinesterase. Knowing that calafate has a high profile of polyphenols, this work is aimed to present the characteristics, description of metabolites and the potential of calafate for nutrition and health purposes, especially to neurodegenerative diseases.

Biography

Maria Eugenia Romero Roman is a PhD student of Agronomic Science from the University of Concepción, Chile. She completed her Master's Degree in Molecular Biotechnology from the University of Guayaquil, Ecuador. She worked as Deputy Head of Department of Biotechnology in Litoral Sur Experimental Station at National Institute of Agricultural Research of Ecuador and as Research Assistant at the University of Babahoyo, Ecuador. Currently, she is working with calafate, analyzing it a source of functional ingredients by determining bioactive compounds, testing isolated or mixed metabolites to assay some formulations *in vitro* and *in vivo*, in order to propose those metabolites extracted from calafate as food supplement.

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