

EXPLORATION OF DIETARY PLANTS FROM WORLDWIDE BIODIVERSITY AIMING THE DISCOVERY OF ACTIVE AGENTS WITH ANTI-AGEING EFFECTS

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Dietary interventions obtain a profound impact on human lifespan, while constitute edible plants a promising source of chemical entities that promotes healthy ageing¹. Maqui (*Aristotelia chilensis*, Elaeocarpaceae [Molina] Stunz), is a small tree native to South Chile, deeply rooted in traditional dietary culture of indigenous. Moreover, carob tree (*Ceratonia siliqua*, Leguminosae L.) has been grown since antiquity in most countries of Mediterranean region, composing a staple in the diet of people in times of famine. Maqui berries and carob pods, have drawn attention due to their potential health benefits, which are largely attributed to their rich polyphenolic content.

A high-throughput phytochemical investigation of methanol and water extracts of the edible parts, berries and pods respectively, was performed. Fingerprinting procedures using HPTLC showed that both plants had rich chemical profile, while phenolic compounds prevailed. Profiling and dereplication procedures employing hyphenated techniques (HPLC/UHPLC-PDA, LC-(ESI)-HRMS/MS) were also applied and various putative bioactive compounds were identified. Hence, analytical and preparative techniques afforded compounds belonging to anthocyanins, flavonoids, flavonoid glucosides and phenolic acids, followed by structure elucidation (1D & 2D NMR). The *in vivo* evaluation of anti-oxidant and anti-ageing properties of maqui and carob pods water extracts in *Drosophila melanogaster* flies revealed, that oral administration of both activate the Nrf2/Keap1 antioxidant pathway and proteasome peptidase activities. Complementary to the above, the metabolism of both dietary fruit extracts was investigated *in vitro* using rat liver microsomes. Conclusively, maqui and carob pod water extracts could be a potent source of anti-oxidant/ anti-ageing nutraceuticals.

Keywords: *Aristotelia chilensis*, *Ceratonia siliqua*, antioxidant, anti-ageing, nutraceuticals

References:

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