



Characterization of Myrtle leaves extract and identification of potential anti-amyloidogenic compounds

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Abstract: Several age-related conditions are associated with the deposition and accumulation of extracellular insoluble fibrillar aggregates. Among these, neurodegenerative disorders such as Alzheimer's disease are particularly notable due to their widespread prevalence and significant societal impact¹.

Compounds such as flavonoids and epigallocatechin gallate, which are known for their ability to bind to and inhibit A β peptide aggregation, are abundantly found in plants and vegetables and exhibit neuroprotective properties²⁻⁵. Myrtle (*Myrtus communis*) is an evergreen aromatic plant historically used in cooking and liqueur production. While the leaves are often considered a waste product, they could represent a valuable resource, as they are known to contain a variety of bioactive compounds⁶.

Here, we describe the characterization of various aqueous, alcoholic, and hydro-alcoholic myrtle leaf extracts. By combining NMR and LC-HRMS analyses of both total extracts and phenolic-enriched fractions, we have identified 35 putative bioactive compounds, including flavonoids and their glycosylated forms, hydrolysable tannins, myrtucommulones, organic acids, and glycosylated phenolic acids.

These compounds could represent promising tools for the prevention and treatment of neurodegenerative disorders by targeting the amyloid aggregation pathway. The combination of antioxidant, anti-inflammatory, and anti-amyloidogenic properties⁷ highlights myrtle and its bioactive compounds as promising candidates for neurodegenerative prevention.

- ¹ Lee et al., 2017. Chemical Society Reviews, 46(2), 310-323.
- ² Ciaramelli et al., 2018. Food Chemistry, 252, 171-180.
- ³ Airoldi et al., 2018. Current medicinal chemistry, 25(27), 3228-3246.
- ⁴ Palmioli et al., 2022. ACS Chemical Neuroscience, 13(22), 3152-3167.
- ⁵ Ciaramelli et al., 2022. Frontiers in Chemistry, 10, 896253.
- ⁶ Tumen et al., 2012. International journal of food sciences and nutrition, 63(4), 387-392.
- ⁷ Guzzi et al., 2017. Chemistry–An Asian Journal, 12(1), 67-75.