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Culinary Plant-Based Decoctions: A promising approach for combatting neurodegenerative disorders

Clara Grosso^{1,*}, Rosário Martins^{2,3}, Cristina Delerue-Matos¹

¹REQUIMTE/LAQV, Instituto Superior de Engenharia do Porto, Instituto Politécnico do Porto, Rua Dr. António Bernardino de Almeida 431, 4249-015 Porto, Portugal

² Escola Superior de Saúde, Instituto Politécnico do Porto, Rua Dr. António Bernardino de Almeida 400, 4200-072 Porto, Portugal

³ Centro Interdisciplinar de Investigação Marinha e Ambiental, Universidade do Porto (CIIMAR/CIMAR), Terminal de Cruzeiros do Porto de Leixões, Av. General Norton de Matos s/n, 4450-208 Matosinhos, Portugal

* claragrosso@graq.isep.ipp.pt

This study aimed to assess the effectiveness of nutritional therapy in preventing or treating neurodegenerative disorders. To achieve this, decoctions from 5 culinary plants - turmeric (*Curcuma longa* L.), rosemary (*Salvia rosmarinus* Spenn.), lemon basil (*Ocimum basilicum* L. var. *citriodorum*), spearmint (*Mentha spicata* L.) and winter savory (*Satureja montana* L.) - were evaluated for their ability to combat reactive oxygen species (ROS), reactive nitrogen species (RNS), and enzymes associated with Alzheimer's disease. The total phenolic content ranged from 43.2 mg gallic acid equivalent (GAE)/g extract in turmeric to 327.3 mg GAE/g extract in rosemary. While lemon basil, spearmint, rosemary and winter savory decoctions displayed significant superoxide anion radical scavenging activity (IC₅₀ values between 46.8 and 62.0 µg/mL), winter savory was the least active of this group against nitric oxide radical (IC₅₀=314.5 µg/mL). Rosemary extract was the most active inhibitor of cholinesterases, exhibiting IC₅₀=1068.4 µg/mL for acetylcholinesterase and IC₅₀=858.8 µg/mL for butyrylcholinesterase. Turmeric decoction, with the lowest phenolic content, showed the least promising results among the tested extracts.

This study demonstrates the potential of culinary plant decoctions as nutritional therapies for neurodegenerative disorders. Rosemary exhibited the most promising results, showing high activity in scavenging free radicals and inhibiting cholinesterases, suggesting its potential to be included in a functional food or food supplement.

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