

Título: SCREENING OF PLANTS TRADITIONALLY USED IN NAVARRA (SPAIN) FOR NEW BIOLOGICAL ACTIVITIES: AN IN VITRO APPROACH

Nombre: López Ramos, Víctor

Universidad: Universidad de Navarra

Departamento: Farmacia y tecnología farmacéutica

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Dirección:

- > **Director:** María Isabel Calvo Martínez
- > **Codirector:** Rita Yolanda Cavero Remón

Tribunal:

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Resumen: This thesis is focused on traditional medicinal plants from Navarra with the purpose of finding bioactive extracts through an in vitro pharmacological evaluation. A total of 168 extracts corresponding to 34 plants were tested in a preliminary screening for antioxidant and antifungal activities using the DPPH free radical and the fungus *Rhizopus stolonifer*. Almost 50 % of the extracts reduced the DPPH radical and 15 % inhibited fungal growth. Six plants from the Lamiaceae (*Melissa officinalis*, *Mentha aquatica*, *Mentha longifolia*, *Mentha pulegium*, *Mentha suaveolens* and *Mentha x piperita*) were also assayed for potential central nervous systems effects according to its traditional uses. *Melissa officinalis* protected PC12 cells against toxicity induced by hydrogen peroxide as it increased cell survival (MTT reduction), reduced cell damage (LDH release) and reduced intracellular production of reactive oxygen species (ROS). This plant was also shown to be a promising source of natural antioxidants and MAO-A inhibitors. *Mentha aquatica* and *Mentha x piperita* demonstrated neuroprotective effect in the PC12 cell line, antioxidant activity and inhibition of MAO-A. In addition *Mentha aquatica* showed affinity to the GABA-benzodiazepine receptor. *Anagallis arvensis* and *Anagallis foemina*

exerted antimicrobial (anti-Candida), cytotoxic (in PC12 and DHD/K12PROb cells) and anti-inflammatory (COX inhibition and radical scavenging capacities) properties that may explain its traditional usage as anti-infective remedies with wound healing properties. Finally, the herbal tea *Phlomis lychnitis* showed neuroprotective activities and phenylpropanoids were identified by HPLC/DAD/ESI/MS as radical scavengers, being verbascoside the major antioxidant constituent. The findings demonstrate the value of ethnobotanical information in pharmaceutical research.