World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:16, No:07, 2022

Pistacia Lentiscus: A Plant With Multiple Virtues for Human Health

Authors : Djebbar Atmani, Aghiles Karim Aissat, Nadjet Debbache-Benaida, Nassima Chaher-Bazizi, Dina Atmani-Kilani, Meriem Rahmani-Berboucha, Naima Saidene, Malika Benloukil, Lila Azib

Abstract : Medicinal plants are believed to be an important source for the discovery of potential antioxidant, anti-inflammatory and anti-diabetic substances. The present study was designed to investigate the neuroprotective, anti-inflammatory, anti-diabetic and anti-hyperuricemic potential of Pistacia lentiscus, as well as the identification of active compounds. The antioxidant potential of plant extracts against known radicals was measured using various standard in vitro methods. Anti-inflammatory activity was determined using the paw edema model in mice and by measuring the secretion of the pro-inflammatory cytokine, whereas the anti-diabetic effect was assessed in vivo on streptozotocin-induced diabetic rats and in vitro by inhibition of alpha-amylase. The anti-hyperuricemic activity was evaluated using the xanthine oxidase assay, whereas neuroprotective activity was investigated using an Aluminum-induced toxicity test. Pistacia lentiscus extracts and fractions exhibited high scavenging capacity against DPPH, NO. and ABTS+ radicals in a dose-dependent manner and restored blood glucose levels, in vivo, to normal values, in agreement with the in vitro anti-diabetic effect. Oral administration of plant extracts significantly decreased carrageenan-induced mice paw oedema, similar to the standard drug, diclofenac, was effective in reducing IL-1β levels in cell culture and induced a significant increase in urinary volume in mice, associated to a promising anti-hyperuricemic activity. Plant extracts showed good neuroprotection and restoration of cognitive functions in mice. HPLC-MS and NMR analyses allowed the identification of known and new phenolic compounds that could be responsible for the observed activities. Therefore, Pistacia lentiscus could be beneficial in the treatment of inflammatory conditions and diabetes complications and the enhancement of cognitive functions.

Keywords : Pistacia lentiscus, anti-inflammatory, antidiabetic, flavanols, neuroprotective
Conference Title : ICMPNP 2022 : International Conference on Medicinal Plants and Natural Products
Conference Location : Paris, France
Conference Dates : July 19-20, 2022