Determination of Antioxidant Capacity and HPLC Analysis of Gallic Acid Plus Rutin in Some Lamiaceae Plants Growing in the East of Libya

International Journal of Pharmacy and Chemistry

2023; 9(1): 1-8

http://www.sciencepublishinggroup.com/j/ijpc

doi: 10.11648/j.ijpc.20230901.11

ISSN: 2575-5730 (Print); ISSN: 2575-5749 (Online)

Volume 9, Issue 1, January 2023, Pages: 1-8

Received: Nov. 17, 2022; Accepted: Feb. 4, 2023; Published: Feb. 27, 2023

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Abstract

Lamiaceae family comprise a wide range of medicinal and aromatic plant species with strong antioxidant properties and multiple pharmaceutical applications in folk medicine. *Mentha piperita* L., *Ocimum basilicum*, *Origanum vulgare* L, *Rosmarinus officinalis* L, *Salvia officinalis* L. and *Thymus capitatus,* are edible plants in Libya, belonging to this family. The current work aims to evaluate gallic acid and rutin contents of the methanolic extract of the mentioned plants using RP-High performance liquid chromatography (HPLC) and assess their antioxidant properties by applying the DPPH radical scavenging assay. The content of gallic acid were found to be considerable in all plants studied, most remarkably in *Rosmarinus officinalis* L. and *Thymus capitatus* with area under the peak (56.14% and 54.62% respectively), while lower contents were detected in *Ocimum basilicum* (34.44%), *Origanum vulgare* L. (28.98%), *Mentha piperita* L.(26.09%), and *Salvia officinalis* L. (24.34%). On the other hand, it was noted that rutin is found in less quantities compared to previous results. The extracts of *Organium vulgare* and *Thymus capitatus* had a significant antioxidant potential compared to standard vitamin C with 0.34 ± 0.03 and 0.46 ± 0.02 mg/mL respectively, while a lower scavenging capacity were recoded for *Mentha piperita* L. (0.59 mg/mL ± 0.01), *Salvia officinalis* L. (0.60 mg/mL ± 0.01), *Rosmarinus officinalis* L (0.65 mg/mL ± 0.07), and *Ocimum basilicum* (0.99 mg/mL ± 0.02). In conclusion, the reported results point out the significance of this family as a source of antioxidant agents with high promising capability to affect the redox state.

Keywords

Libya, Gallic Acid, Rutin, DPPH, HPLC

To cite this article

Abdullah Alamami, Samar Ben Zaed, Esra El Naili, Areej Daboub, Naema Elremali, Fatma Elshibani, Salim Skaik. Determination of Antioxidant Capacity and HPLC Analysis of Gallic Acid Plus Rutin in Some Lamiaceae Plants Growing in the East of Libya, *International Journal of Pharmacy and Chemistry*. Volume 9, Issue 1, January 2023 , pp. 1-8. doi: 10.11648/j.ijpc.20230901.11

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