

Ethanollic Extract of *Glycyrrhiza glabra* to Ameliorate Oxidative Stress – Studies *in vitro* †

Dhanya K.C.^{1,*}, Femi Varghese¹

¹ Department of Microbiology, St. Mary's College, Thrissur, Kerala, India

* Correspondence: dhanuchandra@gmail.com;

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Abstract: Plants are major sources of bioactive organic molecules that are of interest to the pharmaceutical industry and are being screened for new drugs and chemicals. *Glycyrrhiza glabra* Linn. (Family: Fabaceae) also known as Liquorice, Mulaithi, or Yashtimadu is a well-known medicinal plant used in traditional medicine. Its roots and rhizomes are the medicinal parts used and are reported to possess antitumor, antimicrobial, antiviral, anti-inflammatory, immunoregulatory activities. This plant is also used as a flavoring agent due to its sweetness. In the present work, the ethanolic extract of *Glycyrrhiza glabra* was prepared, and its phytochemical analysis was done using HPLC. The *in vitro* antioxidant assays such as DPPH radical scavenging assay, Hydroxyl radical scavenging assay, total antioxidant activity assay, and total reducing power assay were done, and the results showed significant antioxidant activity of the extract. The extract was analyzed further to evaluate the ability to protect against oxidative stress in chicken liver tissue. The levels of glutathione and lipid peroxidation in H₂O₂ and/or *G glabra* extract-treated tissue indicated the potential to protect against oxidative stress under *in vitro* conditions. The *in vitro* comet assay results showed that the *G glabra* extract protected against H₂O₂ induced cellular DNA damage. These findings indicated promising antioxidant and antigenotoxic potential of *G. glabra* and need further exploration for translating these findings to its possible health benefits.

Keywords: Antioxidant activity; Oxidative stress; DNA damage; Genotoxicity; Biopharmaceuticals.

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Conflicts of Interest

The authors declare no conflict of interest.