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In Vitro Antioxidant and Free Radical Scavenging Activity of Phyllanthus Emblica L. Extract

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Abstract : Introduction: Oxidative stress is identified as the root cause of the development and progression of several diseases as the disproportion of free radicals in the body leads to tissue or cell damage. Polyphenols are the most common antioxidant found in plants and are efficient in capturing oxidative free radicals. Aim of the Study: This study focused on the antioxidant activity of polyphenols extracted from Phyllanthus Emblica L. as oxidative stress plays a vital role in developing and progressing many diseases, including cardiovascular diseases and cancer. Materials and Methods: The plant was extracted using a mixture solvent (ethyl alcohol: water in ratio 8:2). The total phenolic content of P. Emblica extract was determined using the Folin-Cioucalteu method and calculated as gallic acid equivalents (GAE) and various antioxidant assays DPPH and ABTS radical scavenging capacity assays. Results and Discussion: The findings exhibited a strong correlation between antioxidant activity and the total phenol contents. In addition, the IC_{50} of P. Emblica extract via DPPH and ABTS assays were 68.10 µg/mL ± 0.455, and 49.24 µg/mL ± 0.716, respectively. Furthermore, P. Emblica extract showed antioxidant activities in a concentration-dependent manner. Vitamin C was used as a positive control in the DPPH assay, while Trolox was used as a positive control in the ABTS assay. Conclusions: In conclusion, P. Emblica extract consisted of a high amount of total phenolic content, which possesses potent antioxidant activity. However, further antioxidant activity assays using human cell lines such as SOD, ROS, and RNS scavenging assays and in vitro antioxidant experiments should be performed in order.

Keywords : antioxidant, ABTS scavenging, DPPH scavenging assay, total phenol contents assay, Phyllanthus Emblica L
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