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**IN VITRO ANTIOXIDANT AND FREE RADICAL SCAVENGING ACTIVITY OF
Phyllanthus emblica L. EXTRACT**

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Oxidative stress has been 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. 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. 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 Folin-Ciocalteu method and calculated as gallic acid equivalents (GAE) and various antioxidant assays which were DPPH and ABTS radical scavenging capacity assays. The findings exhibited a strong correlation between antioxidant activity and the total phenol contents. In addition, the IC₅₀ 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 as a concentration dependent manner. Vitamin C was used as a positive control in DPPH assay, while Trolox was used as a positive control in ABTS assay. 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 as well as in vitro antioxidant experiments should be performed in order.

Keywords: Antioxidant, ABTS scavenging, DPPH scavenging assay, total phenol contents assay, *Phyllanthus emblica* L.