

Analysis of Antioxidant Activity of Traditional Sri Lankan Herbal Formula Composed of *Phyllanthus Emblica* and *Tinospora Cordifolia*

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Sri Lanka harbours a diverse range of herbal plants that have long been valued in traditional medicine for their potent bioactive compounds. *Phyllanthus emblica* and *Tinospora cordifolia* are two widely used medicinal plants known for their antimicrobial, antioxidant, anti-inflammatory, and immunomodulatory properties. Although these two plants have traditionally been used together in Sri Lankan healing practices, their combined therapeutic effects remain underexplored in scientific literature. Hence, this study aimed to evaluate the antioxidant activity and total phenolic content of water and ethanol extracts of the *P. emblica* and *T. cordifolia* combination, using the DPPH radical scavenging assay and Folin-Ciocalteu method. Equal amounts of dried fruits of *P. emblica* and the dried stems of *T. cordifolia* were used to prepare traditional 8:1 kashaya preparations. To prepare ethanol extract, the mixture of powdered plant samples was extracted at a solid: solvent ratio of 1:10 in ethanol using a Soxhlet apparatus. Water extract and ethanol extract of the herbal formula composed of *P. emblica* and *T. cordifolia* showed excellent antioxidant activity measured by 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging assay. The water extract of this combination showed an IC₅₀ value of 0.139 ± 0.001 µl/ml, while the ethanol extract showed a value of 5.47 ± 0.002 µg/ml. Ascorbic acid, used as the reference standard, demonstrated an IC₅₀ of 4.31 µg/ml. The total phenolic contents of the water extract and ethanol extracts were 12.66 ± 0.132 mg Gallic Acid Equivalent (GAE)/ml extract and 233.2 ± 0.12 mg GAE/g extract, respectively, indicating this is a rich source of polyphenols. The results of this study provide evidence that water and ethanol extracts of folkloric herbal formulations composed of *P. emblica* and *T. cordifolia* are a potential source of natural antioxidants, which will be valuable in the pharmaceutical and nutraceutical industries. Further detailed studies on varying proportions of this combination and identification of the bioactive compounds responsible for the beneficial effects of this combination are warranted.

Keywords: *Phyllanthus emblica*, *Tinospora cordifolia*, antioxidant, DPPH assay, phenolic content

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