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Qualitative and Quantitative Analyses of Phytochemicals and Antioxidant Activity of Ficus sagittifolia (Warburg Ex Mildbread and Burret)

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Abstract : Moraceae family has immense phytochemical constituents and significant pharmacological properties, hence have great medicinal values. The aim of this study was to screen and quantify phytochemicals as well as the antioxidant activities of the leaf and stem bark extracts and fractions (crude ethanol extracts, n-hexane, ethyl acetate and aqueous ethanol fractions) of Ficus sagittifolia. Leaf and stem bark of F. sagittifolia were extracted by maceration method using ethanol to give ethanol crude extract. The ethanol crude extract was partitioned by n-hexane and ethyl-acetate to give their respective fractions. All the extracts were screened for their phytochemicals using standard methods. The total phenolic, flavonoid, tannin, saponin contents and antioxidant activity were determined by spectrophotometric method while the alkaloid content was evaluated by titrimetric method. The amount of total phenolic in extracts and fractions were estimated in comparison to gallic acid, whereas total flavonoids, tannins and saponins were estimated corresponding to quercetin, tannic acid and saponin respectively. 2, 2-diphenylpicryl hydrazyl radical (DPPH)* and phosphomolybdate methods were used to evaluate the antioxidant activities of leaf and stem bark of F. sagittifolia. Phytochemical screening revealed the presence of flavonoids, saponins, terpenoids/steroids, alkaloids for both extracts of leaf and stem bark of F. sagittifolia. The phenolic content of F. sagittifolia was most abundant in leaf ethanol crude extract as 3.53 ± 0.03 mg/g equivalent of gallic acid. Total flavonoids and tannins content were highest in stem bark aqueous ethanol fraction of F. sagittifolia estimated as 3.41 ± 0.08 mg/g equivalent of quercetin and 1.52 ± 0.05 mg/g equivalent of tannic acid respectively. The hexane leaf fraction of F. sagittifolia had the utmost saponin and alkaloid content as 5.10 ± 0.48 mg/g equivalent of saponins and 0.171 ± 0.39 g of alkaloids. Leaf aqueous ethanol fraction of F. sagittifolia showed high antioxidant activity (IC₅₀value of 63.092 µg/mL) and stem ethanol crude extract (227.43 ± 0.78 mg/g equivalent of ascorbic acid) for DPPH and phosphomolybdate method respectively and the least active was found to be the stem hexane fraction using both methods (313.32 µg/mL; 16.21 ± 1.30 mg/g equivalent of ascorbic acid). The presence of these phytochemicals in the leaf and stem bark of F. sagittifolia are responsible for their therapeutic importance as well as the ability to scavenge free radicals in living systems.

Keywords : Moraceae, Ficus sagittifolia, phytochemicals, antioxidant
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