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Phytochemical screening, Proximate composition and antioxidant properties of *Rhinacanthus nasutus* (Heen Aniththa)

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Rhinacanthus nasutus (Heen Aniththa) is a native plant to Sri Lanka found in the dry zone. *R. nasutus* has been used in Sri Lankan traditional medicine, especially for treating skin diseases. Almost all the parts of the plant are used in treatment of various illnesses internally and externally. As there is no adequate literature on *R. nasutus*for its composition and antioxidant properties, this study was aimed on investigation of phytochemical profile, proximate composition and antioxidant properties of *R. nasutus* grown in Sri Lanka. Phytochemical screening of methanolic extract of leaves using the standard methods showed the presence of flavonoids, saponins, steroids, alkaloids, tannins, glycosides, quinones, terpenoids, diterpenes, anthracene and phytosterols. Alkaloids and saponins were quantified using gravimetric procedures recorded in the literature. Further, flavonoids, total phenols, and tannins were quantified by following colorimetric methods and using quercetin(Q), gallic acid(GA) and tannic acid (TA) as the standards respectively. Phytochemical quantification of leaves showed the presence of 4.48 (w/w)% of alkaloids, 7.74 (w/w)% of saponins, 57.17±2.78 mg GAE/g of total phenolics, 11.64±0.61 mg QE/g of flavonoids and 7.02±0.24 mg TAE/g of tannins. Proximate analysis was carried out for using the standard AOAC (Association of Official Analytical Chemists) methods and the proximate composition of fresh leaves of *R. nasutus* showed the presence 14.46% of moisture, 15.04% of ash, 2.38% of crude fat, 14.25% of crude fiber, 12.19% of crude protein and 41.68% of carbohydrate in a w/w basis. The antioxidant capacity was studied using DPPH(2,2-diphenyl-1-pycrylhydrazyl) free radical scavenging and FRAP (Ferric Reducing Antioxidant Power) assays with ascorbic acid and $FeSO_4.7H_2O$ as the standards, respectively. Accordingly, IC_{50} value of DPPH assay was found to be 514.3 μgmL^{-1} whereas FRAP value was recorded as 594.30±2.93 µmol Fe^{2+}/g. In conclusion the leaves of *R. nasutus* are rich with important phytochemicals, it contains higher amount of minerals and appreciable amount of proteins, and possess significant antioxidant properties. This study signifies the multifunctional therapeutic potential of *R. nasutus.*

Keywords: *Rhinacanthus nasutus, phytochemicals, proximate composition, DPPH assay, FRAP assay*

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