

Evaluation of total phenolic content, total flavonoid content, *in vitro* antioxidant activity and *in vitro* antidermatophytic activity of *Rhinacanthus nasutus* (Aniththa) grown in Sri Lanka.

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Rhinacanthus nasutus is highly used in Sri Lankan traditional medicine especially for kitibha (psoriasis). Recent studies have shown that the different parts of this plant exhibit various biological activities. Therefore, it is a great interest in evaluation of the chemical composition and biological activities of *Rhinacanthus nasutus* plant. In this study, two different solvent extracts namely, 80% aqueous acetone and 80% aqueous ethanol were obtained and subjected for phytochemical screening tests. Total phenolic, total flavonoid contents as well as antioxidant activity of the four extracts were assessed spectrometrically by using Folin-Ciocalteu method (FC), Aluminium chloride colorimetric method and, 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay respectively. The *in vitro* anti dermatophytic activity of all extracts was evaluated by using two methods based on minimum inhibitory concentration (MIC) determination by a serial agar dilution technique and inhibitory zone determination by Disc diffusion assay.

The results of the preliminary phytochemical screening tests revealed the presence of phenolic compounds, flavonoids, alkaloids, proteins, tannins and carbohydrates in all plant extracts. Saponins were present in the extracts of 80% aqueous ethanol obtained from fresh leaves and 80% aqueous ethanol obtained from dry leaves. Among the extracts employed, 80% ethanol fresh leaf extract resulted the promising values of total phenolic (2181.36±130 mg gallic acid equivalent (GAE) / 100 g DW), total flavonoid (1248.42±120 mg catechin equivalent (CAE)/ 100 g DW), and antioxidant activity (5.64±0.21 mM Trolox equivalent (TE)/ 100 g DW) respectively. *In vitro* antidermatophytic activity determined using disc diffusion assay of 80% acetone fresh leaf extract showed the highest activity (10.67±1.2 mm for 1000 µg/disc) against *Trichophyton rubrum* while 80% ethanol dry leaf extract showed the highest activity (10±2.1 mm for 1000 µg/disc) against *Trichophyton mentagrophyte*. Further 80% ethanol dry leaf extract revealed the promising activity by using serial agar dilution technique against both *Trichophyton rubrum* and *Trichophyton mentagrophyte* microorganisms.

It is concluded that the extracts of aniththa leaves showed potential antioxidant activity and antidermatophytic activity against *Trichophyton rubrum* and *Trichophyton mentagrophyte*. Further investigations should be carried out to use as natural source of antioxidant and as antifungal agent for treating skin diseases.

Keywords: *Antidermatophytic activity, Antioxidant activity, Phenolic profile, Rhinacanthus nasutus*

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