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Development of chemical profiles and preliminary phytochemical screening for shoots of *Rhinacanthus* species (Acanthaceae) of Sri Lanka

W A D K Wijesooriya, A R P D U K R Ambadeniya and A P P R Amarasinghe

Department of Botany, University of Kelaniya, Kelaniya

Rhinacanthus nasutus (vern: Gas anitta), *Rhinacanthus polonnaruwensis* (vern: Anitta) and *Rhinacanthus flavovirens* (vern: Heen anitta) are three medicinal plant species of Sri Lanka belonging to family Acanthaceae. *R. nasutus* has been used to treat skin diseases in several countries and detailed phytochemical studies were conducted for the species. Although *R. polonnaruwensis* and *R. flavovirens* have been used in Sri Lankan traditional medicine for skin disorders for many years as has *R. nasutus*, their chemical compositions are not yet reported. The physicians as well as the patients who utilize plants of this genus as medicine are faced with difficulties in identifying the most medicinally effective plant species. Therefore, this study aims to develop chemical profiles to discriminate *Rhinacanthus* spp. of Sri Lanka and fulfill their quality control needs. After authentication of the three *Rhinacanthus* spp. at the national herbarium of Sri Lanka, the chemical profiles were developed for their shoots using Thin Layer Chromatography (TLC) for hexane, ethyl acetate and methanol sequential extracts and detected in natural and UV light (at $\lambda = 254$ nm and 365 nm). Solvent extracts of *Rhinacanthus* spp. shoots showed a better separation of their compounds with a mobile phase of toluene: ethyl acetate (75:25 v/v). The results suggested that TLC profiles have the potential to identify *Rhinacanthus* spp. of Sri Lanka. Standard qualitative phytochemical screening of these extracts revealed the presence of alkaloids, flavonoids, steroids, saponins, and terpenoids in the shoots of all three *Rhinacanthus* species. Methanol extracts showed the highest number of phytochemical groups while hexane extract showed the least number of phytochemicals of the three solvent extracts indicating that more polar phytochemicals are present in shoots of *Rhinacanthus* spp. compared to nonpolar compounds. Further isolation and purification of phytochemicals of *Rhinacanthus* spp. are needed to elucidate the chemical constituents to assess their efficacy.

Keywords: *Rhinacanthus* species, Thin Layer Chromatography, phytochemical screening