(86)

Comparative Phytochemical Screening and Chromatography Development to Determine the Suitability of Stem Parts of *Justiciaadhatoda* (Adhathoda) in the Preparation of Standardise Herbal Drugs

Wellawatta W.M.A.S.[1]*, Munasinghe M.[1], Jeewandara P.[2], Nawarathne T.K.[2]

[1]*Department of Botany, University of Sri Jayewardenepura, Sri Lanka*
[2]*Bandaranayake Memorial Ayurvedic Research Institute, Sri Lanka*
*awellawatta@gmail.com

Abstract

Justicia adhatoda, a well-known medicinal plant that used in Ayurveda system of medicine to cure the disorders mainly associated with respiratory system. The major active compounds present in this plant are quinasoline type alkaloids known as Vasicine and Vasicinone. In Ayurveda, stem partsare used for the preparation of drugs due to unavailability of root parts. Hence, this study was carried out using stem and root parts of *J. adhatoda* collected from three different climatic zones t in Sri Lanka (Dry, intermediate, wet) and nine market samples collected from ayurvedic base hospitals and main dealers. Sample was extracted using ethanol and water as solvents (cold maceration) for phytochemical screening. The extracts were chemically analyzed for triterpenes and unsaturated sterols (The Liebermann-Burchard test and salkowski test), saponin (froth test), flavonoids and leucoanthocyanins (Cyaniding and leucoanthocyanin test), tannin and polyphenols, anthroquinones (Bornträger test), cyanogenic glycosides (Gulguard test). For the Thin Layer Chromatography (TLC), sequential extraction was carried out using soxhlet extractor for three different solvents, Petroleum ether, Dichloromethane, and Methanol. According to the present study, unsaturated sterols and saponin were present in both stems and root of *J. adhatoda*. Toluene: ethyl acetate (93:7) was the better solvent system for non-polar compounds extracted into petroleum ether solvent and given the three band separation with Rf (Retardation Factor) 0.32, 0.82, 0.24. This system also gave better separations for medium polar compounds, which were extracted into dichloromethane solvent with Rf 0.75, 0.38, 0.89. Those bands were presented in both stem and root samples. Dioxane: Ammonia (9:1) system was better for the separation of alkaloids, which were extracted into methanolic extract. Three alkaloids band with Rf 0.65, 0.48, 0.4 were evident. These three bands could be identified as Vasicinone, Vasicine and other alkaloid respectively. Width of band and intensity varied according to climatic zone and plant part. According to the phytochemical screening and TLC analysis, both parts contain the unsaturated sterols and saponin, and there were no or little differences of finger print patterns obtained for the stem and roots.

Keywords: *Justicia adhatoda*, Retardation Factor (Rf), Stem and Root, TLC

Proceedings of the 22nd International Forestry and Environment Symposium 2017 of the Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka

14