



Impact of integrated nutrients on growth and yield of Kalmegh [*Andrographis paniculata* (Burm. F) Wall. Ex Nees]

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Abstract : Kalmegh [*Andrographis paniculata* (Burm. F) Wall. Ex Nees.] belonging to the family Acanthaceae is an important medicinal plant, which gains importance for its multiple clinical applications. Investigations were carried out to study the effect of organic, inorganic and biofertilizers on growth and yield of Kalmegh at Horticultural College and Research Institute, Periyakulam. Seventeen treatment combinations with two replications were adopted by using Randomized Block Design. In this field trial, the highest plant height (56.54 cm plant⁻¹), number of branches (22.65 plant⁻¹) and number of leaves (41.40 plant⁻¹), leaf area (128.34 cm² plant⁻¹), dry biomass (2.639 t ha⁻¹) and fresh herbage (1392.22 kg ha⁻¹) and alkaloid yield (0.739 %) yields of *Andrographis paniculata* were recorded in the treatment containing 15 t FYM ha⁻¹ + 45:25:25 kg NPK ha⁻¹ + 1 kg *Azospirillum* ha⁻¹.

Key Words : *Andrographis paniculata*, Integrated nutrients, Yield, Andrographolide, Kalmegh

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INTRODUCTION

Kalmegh [*Andrographis paniculata* (Burm. F) Wall. Ex Nees] is the king of bitters and belongs to the family Acanthaceae. The plant contains the major chemical constituent viz., andrographolide, a diterpene lactone and minor chemical constituents including diterpene lactones viz., andrograpanin, deoxyandrographolide; glycosides viz., neoandrographolide and andrographiside and flavonols viz., oroxylin, wogonin, andrographidines A, B, C, D, E and F. The plant has been reported to possess antipyretic, antihepatotoxic, antihistamic, analgesic, antibacterial, anti-inflammatory, antifertility and immunosuppressive properties due to its bitter andrographolide content (Matsuda *et al.*, 1994). A study conducted in Indonesia has revealed anti-HIV activity of the crude extract from the whole plant (Otake *et al.*, 1995).

Having such a medicinal value and broad geographical distribution through out the country, indiscriminate collection

of *Andrographis paniculata* herb from wild sources, without paying any attention towards its conservation and domestication in regular agriculture, has caused a sharp decline in the availability of the drug to the industries and escalation in its prices. The modern and intensive agriculture calls for the heavy dependence of fertilizers and chemicals, which are not only costly but also cause soil and water pollution. It is, therefore, necessary to supply the plant nutrition in an integrated way and to maintain the overall balance and flow of soil nutrients, seeking maximum efficiency and reducing the waste and losses, with minimal detrimental effects on the human environment. Hence, the present experiment has been carried out to study the effect of integrated nutrients on growth, physiological and yield parameters of *Andrographis paniculata*.

MATERIALS AND METHODS

The experiment was laid out in Randomized Block Design

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