

Influence of graded levels of nitrogen and phosphorus on growth and yield of ambrette (*Abelmoschus moschatus* Medic)

ARUMUGAM SHAKILA AND R. RAJESWARI

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See end of the article for authors' affiliations

Correspondence to:

ARUMUGAM SHAKILA
Department of
Horticulture, Faculty of
Agriculture, Annamalai
University, ANNAMALAI
NAGAR (T.N.) INDIA

ABSTRACT

An experiment was conducted to study the influence of graded levels of N and P on growth and yield of Ambrette. The treatments consisted of three levels of nitrogen viz., 100, 120 and 140 Kg ha⁻¹ and phosphorus viz., 75, 100 and 125 kg ha⁻¹. The results of the study revealed that the maximum level of N and P viz., 140: 125 kg ha⁻¹ recorded the highest values for the growth characters viz., plant height, number of branches and number of leaves. The yield attributes viz., number of pods, pod weight and seed yield were found to be the highest at the level of 120:100 Kg N and P ha⁻¹. However, it was statistically at par with the next level of N and P viz., 120: 75 Kg ha⁻¹. Thus, it can be concluded that N and P @ 120: 75 Kg ha⁻¹ could be considered as the optimum dose for obtaining higher yields in ambrette.

Key words : Ambrette, Nitrogen, Phosphorus, Growth, Yield

Ambrette (*Abelmoschus moschatus*) Medic belonging to the family malvaceae, is a close relative to Okra, a popular horticultural crop. It is universally known as Ambrette and the oil extracted from seed is called Ambrette oil. It is also known as Musk Mallow. The crop is native of India and grows throughout the tropical regions. Recently India has started exporting ambrette seeds to France, Germany, Japan, Singapore, Spain and several other countries. The seed coat yields an essential oil, which is used as a base material for preparing high – grade perfumes and cosmetics (Misra and Mitra, 1971). In medicine, seeds are used as aphrodisiac, diuretic, stomachic, demulcent and carminative. Nutrition plays an important role in the overall improvement in growth and yield in many medicinal and aromatic plants and any interruption in plant nutrition even for a short period has a negative effect on yield. Therefore, balanced supply of major nutrients combined with appropriate cultural practices are important for obtaining higher yields. Considering the above facts, the present investigation was carried out to study the influence of graded levels of nitrogen and phosphorus on the growth and yield of ambrette.

MATERIALS AND METHODS

The experiment was carried out in the Department of Horticulture, Faculty of Agriculture, Annamalai University during the year 2005 – 2007. Seeds of ambrette collected from University of Agricultural Sciences, Bangalore were used for the study. The experiment was laid out in a randomized block design with three replications. The treatments consisted of three levels of

nitrogen viz., 100, 120 and 140 kg ha⁻¹ and phosphorus viz., 75, 100 and 125 kg ha⁻¹ and their combinations. The observations regarding growth characters viz., plant height, number of branches, number of leaves and yield characters viz., number of pods, pod weight and seed yield were recorded and analysed statistically (Panse and Sukhatme, 1978).

RESULTS AND DISCUSSION

The results pertaining to the effect of N and P on plant height showed significant differences among the various treatments (Table 1). Plant height was highest (131.04 cm) with the application of N and P @ 140: 125 kg ha⁻¹ but it was statistically at par with N and P @ 140: 100 kg ha⁻¹ which recorded 128.93 cm. Similar findings on the increase in plant height due to application of higher doses of N and P fertilizers were reported by Mahabaleswar Hedge (1984) and Saraf and Tiwari (2004) in ambrette and Laxman Singh *et al.* (2005) in bhendi. Increased plant height due to application of higher levels of nitrogen may be attributed to the fact that N, being the chief constituent of protein is essential for the formation of protoplasm, which leads to cell division and cell enlargement resulting in increased plant growth (Bakley, 1974).

It was observed from the present study that increasing levels of N and P consistently enhanced the number of branches per plant (Table 1). It was found to be maximum (20.00) with the application of N and P @ 140: 125 kg ha⁻¹ which coincided with the next level of N and P (140: 100 kg ha⁻¹) which recorded a value of 19.15. The results are in conformity with the findings of Birbal