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Effect of graded levels of nitrogen and phosphorus on growth parameters of Glory lily (*Gloriosa superba* L.)

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Abstract : An experiment was conducted to study the effect of graded levels of nitrogen and phosphorus on growth and yield of glory lily. The treatment consisted of three graded levels of nitrogen *viz*., 90,120,150 kg N ha^{-1} and phosphorus *viz*., 37.5, 50, 62.5 kg P ha^{-1} and constant level of potassium (75 kg ha^{-1}) was used for the experiment. Entire dose of phosphorus, potassium and one third of nitrogen were given as basal. The experiment was conducted in Randomized Block Design with three replications. The results revealed that the growth parameters *viz*., plant height (230.58 cm), number of branches (7.81), number of leaves (98.53) and yield attributes *viz*., number of tubers per plant, tuber weight and tuber yield per plant when compared to the control.

Key words : Glory lily, Nitrogen, Phosphorus, Growth, Yield parameters

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Glory lily (*Gloriosa superba* L.) belongs to the family Liliaceae. It is one of the important medicinal plants which has attained commercial in Tamil nadu in recent times. The plant is native to Tropical Asia and Africa and is found growing throughout tropical India from North west Himalayas to Assam and Deccan peninsula extending upto an elevation of 2120 m. The medicinal value of glory lily is due to the presence of alkaloids chiefly colchicine and gloriosine. Colchicine extracted from the tubers and seeds are used in the treatment of gout and rheumatism and also used to induce polyploidy in crop plants. Glory lily tubers are used as tonic, antiperiodic, antihelmintic and also against snake bites and scorpion stings. 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 glory lily.

RESEARCH METHODS

The experiment was conducted at a farmer's field at kachiperumal village in Jayamkondam taluk of perambalur district during July to December, 2009. The experiment was laid out in Randomized Block Design with three replications.The treatments consisted of application of major nutrients like nitrogen(90,120,150 kg ha^{-1}), phosphorus (37.5, 50, 62.5 kg ha^{-1}) with a constant dose of potassium(75 kg ha^{-1}). Uniform sized tubers weighing around 70 g were planted in the field at a spacing of 60 cm x 45 cm. One third nitrogen along with entire dose of phosphorus and potassium was applied as basal, and the remaining two third nitrogen was applied in 50-60 days after planting .The fertilizers were applied in the form of urea, super phosphate and muriate of potash. Irrigation and weeding were done as per the requirement of the crop. The observation on growth parameters like plant height, number of branches, number of leaves and yield attributes like number of tubers per plant, tuber weight and tuber yield per plant were recorded at 180 DAP and were analysed statistically (Panse and Sukhatme, 1978).