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Effect of foliar application of organic nutrients and inorganic fertilizers on NPK uptake, post harvest soil available nutrients and yield performance of palak (*Beta vulgaris* L. var *bengalensis*)

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Abstract : The experiment on effect of foliar application of organic nutrients and inorganic fertilizers on NPK uptake post harvest soil available nutrients and yield performance of palak (*Beta vulgaris* L. var. bengalensis) was carried out at the Orchard field unit, Department of Horticulture, Faculty of Agriculture, Annamalai University during January – March, 2010.Foliar organic nutrients *viz.*, panchagavya (3 and 4%) vermiwash (1:3 and 1:5 dilution ratio), humic acid (0.1 and 0.2%), water spray (control) and two levels of fertilizers (basal) 100% and 75% recommended dose of fertilizers were tried in this study. The nutrient uptake, post harvest soil available nutrients and total leaf yield by the crop were favourably influenced by the application of panchagavya 4 per cent + 100 per cent NPK which was followed by the application of panchagavya 4 per cent + 75 per cent NPK. Based on the results, it can be concluded that the application of panchagavya 4 per cent + 100 per cent NPK has been identified as the best treatment for increasing the yield of palak var. OOTY -1.

Key words : Foliar application, Organic nutrient, Panchagavya, Vermiwash, Palak

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Palak is also designated as 'Indian spinach' or spinach beet or beet leaf. Spinach beet or desi palak is the only cultivar of *Beta valgaris*, which is annual in duration. It is grown in autumn and spring in plains, while in mid hills, it is grown from July to September and in high hills, it is grown from March to June. In Tamil Nadu, palak cultivation has been popular in hilly regions comprising Ooty and Kodaikanal, knowing its importance, the Horticulture research station. Ooty (TNAU), has released its improved variety in palak namely Ooty-1. Interestingly the cultivation of palak in the plains of Tamil Nadu has also been spreading in recent times. Application of nutrients through foliar sprays demand less quantity of nutrients, with rapid and efficient absorption. Foliar nutrients usually penetrate the cuticle of the leaf and enter the cells. Hence, foliar nutrition is recognized as an important method of fertilization in modern agriculture.

RESEARCH METHODS

The present investigation to study the effect of foliar application of organic and inorganic nutrients on yield performance of palak. (*Beta valgaris* L. var. *bengalensis*) was carried out at the Orchard, field unit of the Department of Horticulture, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Tamil Nadu. The experiment design was laid out following the principles of Randomized Block Design with 14 treatments. Each treatment was replicated thrice and 40 plants were maintained in each replication. The foliar spray of organic nutrients were given at 15, 30 and 45 DAS. The treatments were imposed according to the details given below. The treatments comprised of T_1 - Water spray + 100 per cent NPK (75:50:50 kg of N, P and K per hectare), T_2 - Panchagavya 3 per cent + 100 per cent NPK, T_3 - Panchagavya 4 per cent + 100 per cent NPK, T_4 - Vermiwash in the dilution ratio of 1:3 + 100 per cent