

## Effect of bavistin foliar spray on VAM colonization and growth parameters in six groundnut cultivars

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The impact of application of plant protection chemical bavistin as foliar spray on AM colonization and plant growth parameters like root length, shoot length, shoot fresh weight, shoot dry weight, nodule number and nodule weight of six groundnut cultivars *viz.*, 87779 ICGV, CS 52, FDRS 4, 414332, Gangapuri and J 11 was studied. For the study, the cultivars were raised in field plots. The phosphorus and nitrogen contents of plant material was also estimated. The bavistin spray significantly decreased the per cent infection and number of spores in roots of six cultivars at 50days, 70days and 90days samplings. Except the shoot dry weight at 70days and 90days samplings, all the other parameters studied including 'P' and 'N' contents were negatively affected by the bavistin foliar spray.

Key words : Bavistin, Groundnut cultivars, AM colonization.

### INTRODUCTION

The tripartite associations, in legumes, formed of plants, nodules and endomycorrhizas have potential for increasing the crop yields. Among the biological processes involved in the rhizoplane, the unique role of symbiotic bacteria and the AM fungi which ensure fixation and mobilization and availability of nitrogen and phosphorus of plants have been well recognized. It is also a well-established fact that the AM always prefer certain host exhibiting maximum symbiotic response and increased the growth and yield of crop mainly through improved uptake of nutrients (Allen, 1991) and especially through uptake of phosphorus in soils of low fertility (Smith and Read, 1997). Most agricultural soils possess an indigenous VAM spore strains, the role of which in crop productivity has been examined in sufficient details (Tilak, 1993). Changing agricultural practices have resulted in increased application of pesticides and fungicides for the control of diseases. There is an increasing awareness on the deleterious effects of these chemicals on the beneficial mycorrhizal fungi (Bailey and Safir, 1978). But the reports on the effect of fungicides or insecticides on VAM fungi when applied as foliar sprays are few, though the practice of spraying agricultural chemicals on crops is so common.

### MATERIALS AND METHODS

The investigation was carried out by raising the six cultivars of groundnut in field plots in split-plot design. A field plot of size 16 m x 7 m in the University botanical and experimental garden was selected for the study. The

plot was divided into three rows of three blocks each with block size of 5 m x 2 m. In each block, seeds of six groundnut cultivars *viz.*, 87779 ICGV, CS 52, FDRS 4, 414332, Gangapuri and J 11 were sown in three rows of each. Bavistin at a concentration of 1 g/lit and water were sprayed on to foliage as fungicide treatment and control, respectively. The foliar sprays were carried out thrice, at twenty days interval, starting from 40<sup>th</sup> day after sowing of seeds.

The plant samplings were collected at 50<sup>th</sup>, 70<sup>th</sup> and 90<sup>th</sup> days after sowing. For each cultivar, three plants were sampled from each replicate of the treatment and control. The root samples of treatment and control were collected, processed and stained in 0.1% trypan blue prepared in lactophenol (Philips and Hayman, 1970). The per cent root colonization was calculated by the method of Giovanetti and Mosse (1980). At each sampling time, shoot fresh weight, shoot dry weight, nodule number, nodule weight, root length, shoot length were recorded. The phosphorus content of shoots was estimated by the Vanado-molybdate yellow method (Jackson, 1973). The per cent nitrogen in the plant material was determined by micro-kjeldahl 'N' method (AOAC, 1978). The data of all parameters at each sampling was subjected to statistical analysis to find out the F-value due to treatments as well as cultivars.

### RESULTS AND DISCUSSION

The bavistin foliar spray significantly decreased the per cent infection and number of vesicles or spores in all the