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EFFECT OF RHIZOBIUM INOCULATION ON SEED VIGOUR IN CHICK PEA (*CICER ARIETIUM* L.)

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ABSTRACT

Effect of Rhizobium inoculation on seed vigour was studied. Rhizobium inoculation could not increase seed vigour in most of the seed vigour evaluations but protein content of grain increased in the raya of 16-18% with Rhizobium inoculation. As far as seed vigour is concerned only in brick gravel test it was observed that inoculation with Rhizobium resulted in significant increase in seed vigour.

Key words : Rhizobium inoculation, Seed vigour, Brick gravel test, Protein.

INTRODUCTION

The importance of pulses in the economy, particularly under dry land agriculture, cannot be over emphasised. Pulses occupy an important place in the diet and have a permanent place in the agricultural economy of India. Chick pea is the very important pulse crop in India. Production of any crop primarily depends on the seed quality and vigorous seeds always have better potential for good germination and over all on yield. Legumes are able to utilise the unlimited resources of air nitrogen; this presents a unique opportunity to devise agricultural system without large investment in fertilizer nitrogen. Usually chemical fertilizers prohibitively expensive in developing countries and their substitution by Biological Nitrogen Fixation should be given high priority. In view of the above consideration, the present study was conducted during Rabi season of 2001-02 with the objective to examine the effect of Rhizobium inoculation on seed quality.

MATERIALS AND METHODS

Procurement of Rhizobium strains

Two different strains of chick pea Rhizobium namely G-3 and TAL-620were obtained from Soil Microbiology Laboratory, G.B. Pant University of Agricultural Technology, Pant Nagar, Purity of Culture, was examined microscopically by streaking on congo red yeast extract Manitol Agar medium (CRYEMA).

Screening for Streptomycin resistance

Both the strains were screened against different concentration of Streptomycin to examine antibiotic resistance. Introduction of each isolate was prepared by suspending cells of mother culture into saline solutions. One ml of the suspension of each strain was inoculated into test tube in duplicate containing 5ml yeast extract Manitol broth and antibiotic concentrations ranging from 0 to 1000ug/ml. tubes were shaken on a rotatory shaker at room temperature for 7 days. At the end, cells from each tube were streaked on CRYMA Plates to confirm whether the organism growing in tubes is Rhizobium or any other contaminants.

Experiment and experimental design

Randomised block design having four treatments and five replications was followed. The details are given