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STUDIES OF ANTAGONISTIC EFFECT OF SEED MICRO-FLORA ON RHIZOBIUM

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ABSTRACT

Analysis of seeds of chickpea (*Cicer arietinum* L.) var.PG -114 were performed for the presence of microflora on its surface *viz*. bacteria, actinomycetes and fungi and its antagonistic effect on inoculated Rhizobium were studied. Although, bacteria, fungi as well as actinomycetes were present on seed surface of chickpea var. PG-114 used in the study. Antagonistic effect of seed microflora towards inoculated Rhizobium could not be seen as the inoculated Rhizobium strains failed to grow on the top layer of medium.

Key words : Antagonistic effect, Inoculation, Microflora, Rhizobium, Chickpea.

INTRODUCTION

The microflora present on seed surface and its effect on the pre emergence of the seedlings have been studied by Salisbury (1957). Gibson (1957) working with seeds of Pinus patula reported that some genera of fungi in particular saprophytic fungi present on seed surface i.e. seed coat under favourable conditions invade tissues of the germinating seeds and kill the seedlings. Lawrence and Rediske (1961) with isotope tagged seeds demonstrated that the seed coat microflora was directly responsible for weakening of seed vigour. However, the study of the effect of seed microflora on inoculated Rhizobium has been neglected. The present study was planned to study the seed microflora as well as its antagonistic effect if any on the Rhizobium inoculation and over the performance of inoculated strains in terms of nodulation and nitrogen fixation.

MATERIALS AND METHODS

To study the antagonistic effect of seed micro-flora to Rhizobium an experiment was conducted in laboratory using triple layer technique (Panthier *et al*., 1979) with certain modifications. Seeds of chickpea var. PG-114 were obtained from G.B. Pant University of Ag. and Tech.

Preparation of dilutions

The dilutions were made by adding 10 seeds in 100ml sterile water in conical flask aseptically. The flasks were shaken for 10minutes on rotatory shaker. Tenfold serial dilution upto 10^{-3} was prepared. Both 10^{-2} and 10^{-3} were used in study.

Actinomycetes

Bottom layer

2 ml both the dilutions were poured in sterilized plates separately in 5 replicates. Then 10 ml Ken-Knight medium at 40-45^{0}C. Temperature was poured in each plate. Each plate was mixed gently to mix inoculum and was allowed to cool until the agar was firm.

Intermediate layer

An intermediate layer consisting of 5ml of 2% sterile water agar was poured over the bottom layer of each plate.