RESEARCH PAPER

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Effect of *Azospirillum* on fibre quality and yield of irrigated cotton

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To study the effect of *Azospirillum* on fibre quality and yield of irrigated cotton, a field experiment was conducted during the year 2003-2004. The field experiments were conducted using Randomized Block Design. Amongst the different strains of *Azospirillum,* Surat strain of *Azospirillum* brought about maximum increment in number of branches and number of bolls, maximum boll weight and highest cotton seed yield. The span length, uniformity ratio, tenacity and elongation percentage (EIG per cent) were increased while the micronaire value and shoot fibre index (SFI) were minimum with the application of Surat strain of *Azospirillum,* which are being considered as average to medium type, good elongation and excellent quality fibres.

Key words : *Azospirillum,* Cotton, Yield, Fiber quality.

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INTRODUCTION

Cotton has been one of the main sources of India's economic growth and a foreign exchange earner. Although the country boosts of large area (nearly 9 million hectare), second in yarn production and 3rd in raw cotton production (around 15 million bales annually), the production is far below the world average. Moreover, there has been stagnation in yield level around 300 kg lint/ha, which does not augur in any way any sign of competitiveness (Annonymous, 2002). Seeds inoculated with *Azospirillum* resulted 1.5 times increase in the length of *Flax* fibre (Mikhailouskaya, 2006). Seed yield of *Brassica juncea* (L.) was increased considerably due to application of *Azospirillum* along with neem cake (Khan *et.al.*, 2010). *Azospirillum* not only fixes the nitrogen biologically, but also known to produce growth promoting substances, which favours better growth of crop plants, increase the yield of crop by 5-20 per cent with the saving of nitrogen 40 per cent of the RDF. Taking into account the beneficial role of *Azospirillum,* the present study was undertaken to assess the impact of inoculation on yield and fibre quality of irrigated cotton.

RESEARCH METHODOLOGY

The field experiment was carried out at Research farm, Department of Agronomy, College of Agriculture, Marathwada Agriculture University, Parbhani. Randomized Block Design was used for the experiment. with three replications. Three most efficient strains (TNAU, HAU and Surat) of *Azospirillum* available in the department of plant pathology were used for inoculation of seed. The cotton variety PH 348 was used for sowing. Sowing was done by dibbling method at row to row 60cm and plant to plant 30cm spacing. Irrigation and standard plant protection were followed. The observations on different yield contributing parameters like number of branches and number of bolls were recorded. For this five plants were selected randomly from each plot. The total number of bolls and branches on each plant were counted physically and average was recorded as number of bolls and number of branches. The seed cotton yield was recorded in each plot after three pickings; yield so recorded in each plot was converted in kg/ha. The representative sample of around 110g of cotton lint each of all treatment and replication was drawn and sent to CICR laboratory, Athwal farm, Surat and data on fibre quality parameters were drawn.

RESULTS AND ANALYSIS

The effect of inoculation of *Azospirillum* on yield and fiber quality parameters of irrigated cotton was studied. The effect of inoculation of *Azospirillum* on