

**IMPACT OF *Rhizobium* INOCULATION ON THE GROWTH, YIELD AND NODULATION OF GROUNDNUT (*Arachis hypogaea* L.) VARIETIES**

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An experiment was conducted to assess the impact of rhizobium inoculation on the growth, yield and nodulation of groundnut varieties at the Faculty of Agriculture, Ariviyal Nagar, Kilinochchi from March to August 2023. Two factor factorial experiment was conducted in Randomized Complete Block Design (RCBD) with three replicates. Different percentage of inoculation such as control without inoculation (T<sub>1</sub>), recommended rate (10 mL *Rhizobium* – 1 L of water) (T<sub>2</sub>), and 50% percentage more than the recommended rate (15 mL *Rhizobium* – 1 L of water) (T<sub>3</sub>) were used as treatments denoted as factor 1 and three groundnut varieties such as Tissa (V<sub>1</sub>), ANKG2 (V<sub>2</sub>) and ANKG3 (V<sub>3</sub>) were used as factor 2. Total number of nodules, number of active nodules (Active nodules = Total nodules – Inactive nodules), growth and yield parameters were recorded. Shelling percentage was also calculated to find the significant difference among the treatment combinations. ANOVA was performed to determine the significance of the treatments. The means were separated using Duncan's Multiple Range Test at p=0.05. Fresh weight of pods per plant, dry weight of pods per plant, 100 pods weight and 100 seed weight were highest in T<sub>2</sub> (recommended rate of inoculation) than the other treatments and among the varieties, ANKG2 (V<sub>2</sub>) variety showed the highest performance. The highest shelling percentage was observed in ANKG2 (V<sub>2</sub>) variety under the T<sub>2</sub> and it was 80%. The highest yield was obtained from the recommended rate of inoculation (T<sub>2</sub>) in each variety and among the varieties, ANKG2 gave the highest yield. It can be concluded that inoculating recommended rate of inoculum (T<sub>2</sub>) to ANKG2 variety is ideal treatment combination to obtain the highest yield from groundnut in Kilinochchi District.

**Keywords:** Groundnut varieties, Nitrogen level, *Rhizobium* inoculation, Shelling percentage, Yield

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