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INVESTIGATION OF THE EFFECT OF UREA ON ROOT NODULE
PATTERNS OF WINGED BEAN (Psopocarpus tetragonolobus
(L) DC) VARIETY SLS40 & THE POSSIBLE IDENTIFICATION
OF THE NATIVE RHIZOBIAL FLORA GROWN ON SRI JAYWARDENEPURA
UNIVERSITY SOIL.

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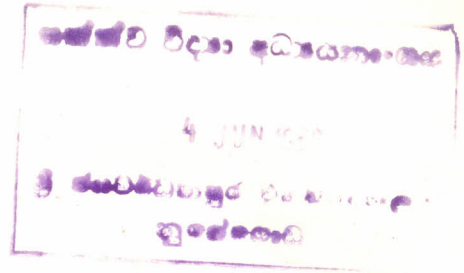
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Summary



Winged bean (*Psopocarpus tetragonolobus* (L) DC) of variety SLS 40 ~~was~~ grown on Sri Jayewardenepura University soil containing native rhizobial flora and growth and nodulation parameters were measured for 20 weeks period.

Nodule initiation, effectiveness of the nodules, number of nodules per plant and nodule fresh weight were decreased due to addition of urea (N fertilizer) at 20kg/ha. But growth of the plants in terms of fresh weight, dry weight and No. of leaves per plant were not effected significantly due to fertilization.

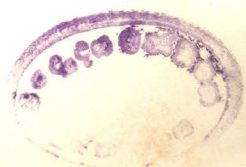
Nodulation of the plants were decreased during the period of the development of pods and seeds.

An attempt was made to isolate native rhizobia from the nodules obtained from the field grown winged bean plants. Maximum number of 4 different strains (which are denoted as A,B,C and D) were identified by the morphological forms of their colonies on Yeast mannitol agar medium.

All the strains were gram negative bacilli. Strain A,B and C were slow growing in Yeast mannitol agar medium which took 6,7 and 7 days to form their characteristic colonies. Strain D was fast growing type which took only 1-2 days to form the colonies.

Standard Leonard jar experiment (Vincent, 1970) was carried out to examine the effectiveness of isolates (A,B, C and D) on the host plants under bacteriologically controlled conditions. Nodules were appeared only in the plants inoculated with strain A or B and mixed culture of A,B,C,D. Plant fresh weight, plant dry weight, No. of nodules per plant and nodule fresh weight of those effectively nodulated plants were higher than other unnodulated plants. This indicates that A and B strains are efficient in N_2 fixation.

But all the nodulated and unnodulated plants appeared in the Leonard jar trials showed lesser growth rate than field grown plants. The yellowing of leaves which may be due to N_2 deficiency were also observed in all the plants in Leonard jars, indicated that strains used as inocula were not efficient enough to fix and supply adequate N_2 to support the nitrogen economy of the plants.



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