# Effect of *Rhizobium* inoculation on incidence of insect pests in Karanj (*Pongamia pinnata*) seedlings under glasshouse condition.

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*Pongamia pinnata*, commonly known as karanj is one of the nitrogen fixing tree species belonging to family Leguminosae, sub-family Papilionaceae. It is an indigenous tree species found throughout India and its wood is used for furniture while oil extracted from seeds has large industrial and medicinal uses. Being a the nitrogen fixing tree species, it is also important for soil management and waste land development. Successful establishment of trees in plantation programme is possible through the production of high quality tree seedlings at nursery levels. (Karupasamy *et al.,* 2012). Therefore, a study on impact of *Rhizobium* inoculation on karanj seedlings was conducted against the incidence of insect pests in glass house condition to assess the impact of *Rhizobium* inoculation on incidence of insect pests and  performance of Karanj seedlings.

For inoculation, *Rhizobium* was isolated from nodules of karanj and culture broth was prepared using YEMA (Yeast extract mannitol agar) media. The treatments comprised of seedling root inoculation with *Rhizobium* alone and along with 3 levels of Nitrogen fertilization including one control.  Nitrogen was given through urea @ 50mg, 150mg and 400mg N/seedling as $N_1$, $N_2$ and $N_3$ respectively. In all there were eight treatments and each treatment was replicated thrice. Observations of insect/pests in karanj plants under glass house condition was taken at 30 days intervals to see whether there was any occurrence of insect/pests under different treatments at various growth stages upto 150 DAT (Days after transplant).

No pests were recorded on the karanj plants at all stages of growth during the treatments except that some plants were affected by mites at control at 60 DAT. The mites were red in colour and identified as *Tetranychus* spp.  The maximum population of *Tetranychus* sp was

recorded to be 7.00 mites / seedling at 60 DAT, i.e., two months after transplanting of seedlings. The symptom of attack was seen as crinkling and thickening of infested leaves. Except control in all other inoculated and N treated plants no mites or any damaged leaves were observed.

The infestation due to mite was found in the control only and no infestation was found in inoculated and N treated plants may be due to some resistance offered by *Rhizobium* through biological nitrogen fixation in inoculated treatments which needs further studies for confirmation, but is in agreement with the studies conducted by Thamer *et al.,* 2011 who reported that nitrogen provided by rhizobia may increase plant resistance by nitrogen based defense mechanism in Mexican bean beetle, *Epilachna varivestis* Muls. in lima bean, *Phaseolus lunatus* L., which produces nitrogen containing cynogenic defence compounds which determines the plant-herbivore interactions. Thus from the above study it can be claimed that inoculation might have offered some resistance against mites, which needs further confirmation by detail studies.

**References:**

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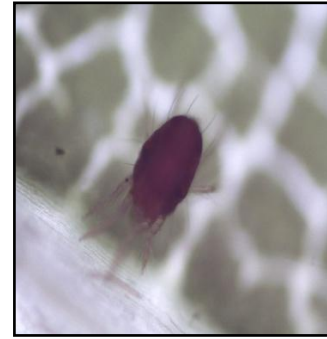
**Plates a and b: Damaged leaves of karanj (control), Plate c:** *Tetranychus* **sp**



(a)



(b)



(c)

**Plates d and e : Better growth performance in inoculated seedlings against control**



**(control)**



**(inoculated)**