

**CHAPTER-V
SUMMARY AND
CONCLUSIONS**

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Groundnut plant has a high phosphate requirement for growth and nitrogen fixation. Phosphorus deficiency therefore is a major factor contributing poor nitrogen fixation and yield of groundnut. Several experiments have proved that phosphat fertilization results in improved growth and nitrogen fixation. In the present studies we used phosphate dissolving micro-organism, *Aspergillus awamori* to improve the status of available phosphate in the soil.

To study the effect of PSM on growth and metabolism of *Arachis hypogaea* L. an experiment with four different treatments was carried out viz.

- 1) Soil (control).
- 2) Soil + PSM
- 3) Soil + RP
- 4) Soil+RP+PSM

The plants were raised in the polythene bags containing clay loam soil. Forty days after sowing the plants were uprooted and used for the growth and metabolic studies.

Many workers have found direct relation between nitrogen metabolism and phosphate nutrition of the legume plant. Therefore in the present investigation

we studied the nitrogen metabolism considering the parameters such as number of nodules per plant, fresh wt. of nodules per plant, leghaemoglobin content (O.D/g of fresh nodules). NR activity in the root, stem and leaf tissue and nitrogen uptake of the plant.

We also studied the effect of PSM on length of root and shoot, dry matter production, phosphate uptake, potassium uptake and chlorophyll content of the groundnut plant.

We observed maximum growth, NPK uptake, NR activity, leghaemoglobin content, nodulation length of root and shoot and dry matter production in the Soil + RP + PSM treatment followed by Soil + PSM and Soil + RP treatments. Following conclusions were drawn from the experimental results..

1. The results suggest that by PSM inoculation we can get the benefit of enhanced phosphate nutrition without application of RP to the soil. As the PSM inoculated plants get more phosphate in available form which are present in the soil as chemically fixed phosphorus.
2. The PSM inoculation along with application of RP enhances the overall growth and metabolism of *Arachis hypogaea* L.
3. The PSM inoculation enhances the nitrogen metabolism of the plant.
4. We can use phosphatic fertilizers in the form of RP which is much cheaper than single super phosphate. Thus by using PSM as biofertilizer we can save the energy and money required for the production of phosphatic fertilizers.