

THE NATURE AND PATTERN OF ROOT NODULATION AND
DRY MATTER PRODUCTION OF TEPHROSIA PURPUREA

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Tephrosia purpurea is a herbaceous, perennial leguminosae plant that grows naturally in the dryzone of Sri Lanka. In the Jaffna peninsula farmers encourage the growth of this plant in paddy soils and market garden soils for its green manurial value and for its nitrogen fixation ability.

Nodulation in this plant starts 3-4 weeks after sowing when the seedlings are 4-6 cm in height. In young plants (3 weeks old) the nodules are small,

round, whitish attaining the size of 1 mm diameter. The number of nodules/plant vary from 1-3. Nodules continue to increase in size and number during subsequent growth. The nodule became pink in colour, changed shape from round to elongate and finally became corolloid. Almost all the nodules were found on the lateral roots. At the maximum nodulation (12-13 weeks old) the number of nodules was 31 per 10 plants, dry weight of nodules was 0.22g/10 plants and the size varied from 8-12 mm in length. The nodule weight decreased after 12 weeks, the nodules shrink and shrivel, and became soft by the 17th week.

In perennial plants when the plants put out new shoots in the following growth season, root nodules appear on the new lateral roots but they are round, and small not more than 1 mm in diameter.

A medium positive correlation was observed between dry matter content of the plant and weight of nodules/plant. Seeds inoculated with rhizobia showed almost two fold increase in dry matter production compared to the uninoculated. The total dry weight of the nodules at 13 weeks was three times greater than that of the uninoculated. The Rhizobium of this plant was found to be slow growing with acid production.