Early, uniform stem nodulation in *Sesbania rostrata* after spray of *Rhizobium* culture

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*Sesbania rostrata* plants grown in pots filled with local Trombay soil did not produce any stem nodules. Plants raised in pots filled with a mixture of local soil and soil from Paddy Breeding Station, Tamil Nadu Agricultural University, Coimbatore, or inoculated with homogenized stem nodules nodulated profusely.

Those fully grown stem nodules were removed, cleaned in tap water, surface-sterilized with 0.1% HgCl₂ for about 4 min, and washed in sterile distilled water. The nodules were crushed, inoculated in Luria broth (tryptone 1%, yeast extract 0.5%, and NaCl 0.5%), and incubated at 28 °C. After 48 h, the culture was plated on Congo red yeast extract mannitol agar. Colorless mucoid, slow growing colonies were isolated and tested. One culture (TCSR) was tested in the field.

For field inoculation, culture grown in Luria broth (about 10⁸ cells/ml) was sprayed on 35-d-old *S. rostrata* (25 plants with 4 replications). At this stage plants were 75-80 cm tall and had no stem nodules.

Nodules developed on inoculated plants within 10 d. Stem nodules on 5 plants from each replication were counted 20 d after inoculation.

N beneficial uptake of N, P, K, Zn, Fe, Mn, and Cu in all seasons; in general, the effect persisted up to 90 kg N/ha (see table). Zn also increased N, P, Zn, and Fe uptake in all seasons. This can be ascribed to the positive effect of Zn on root dry weight and root volume (data not given).

N-Zn interactions were not consistent, N up to 90 kg/ha and ZnSO₄ at 25 kg/ha increased grain yield in all seasons. Simple regressions and coefficients of determination revealed significant positive correlations in all seasons.

A comparison between seasons showed that uptake of N, P, K, Zn, Fe, Mn, and Cu was low during northeast monsoon season.