SUMMARY

Nodule samples from mung bean and cowpea were collected from various locations in the main grain legume growing districts of Sri Lanka. Isolates of rhizobia obtained from these nodules were purified and authenticated using their ability to nodulate *Macroptilium atropurpureum.*

Eight of the isolates collected in this study, two other isolates previously collected from Girandurukotte in Badulla district *viz:* MC 6 and YC 6 were evaluated for N fixing ability on cowpea and mung bean./NifTAL strain TAL 209 was used as the standard check treatment.

Results of the initial evaluation using pot tests and Leonard jar experiments indicated that strains YC 6, MC6 and CP 30 were superior strains and hence used in field evaluation under both dry and wetzone conditions.

Population of rhizobia in soil at Maha Illuppallama was estimated as 230 cells/g with CL 6.6 - 80.3 x 100 at 95% level using most probable number method.

Effect of different levels of soil added P as 0,60 and 180 kg/ha and interaction with different strains on N fixation was also tested.

Isolate MC 6 showed high N fixation ability in mung bean under dry zone conditions at 0 and 60 kg of P /ha. However cowpea when inoculated with Sri Lankan strains did not performed better than TAL 209 inoculated plants under dryzone conditions.

When soil is not enriched with P strains CP 30 and MC 6 increased the yield of mungbean over TAL 209. The trend of higher grain yield in CP 30 and MC 6 over TAL 209 was seen at other levels of P but was significantly higher only in MC 6 at 180 kg/ha.

performance of YC 6 and CP 30 was inferior to TAL 209 at average P levels (60kg/ha) in cowpea. However strain YC 6 produced very high yield 2778 kg per hectare in comparison to 1773kg per ha by TAL 209 inoculated cowpea at 180 kg of P per ha.

Nodulating capability of all test stains were similar. Survival ability of introduced rhizobia over the cropless (inter-season period) period was highest in YC 6. Both MC 6 and CP 30 were poor survivors. The survival ability of TAL 209 was poor and its occupancy in nodules was reduced by 66.5% and 55.98% in mungbean and cowpea nodules respectively in the interim cropless period between two seasons.