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Effect of biofertilizers and organic manures on soil microbial population at different growth stages of mungbean in an Inceptisol

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ABSTRACT : A field experiment was conducted during *Kharif* season at Agricultural Research Farm, Inst. of Agric. Sciences, B.H.U. Varanasi, to study the microbial population in soil at different growth stages of mungbean cv. HUM-1 using two strains of *Bradyrhizobium* sp. (*Vigna*) (MO5 and BM 1) singly as well as in combination with phosphate solubilizing *Pseudomonans striata* (PSM). Cattle Dung Manure (CDM) and Digested Sludge (DS) as organic sources along with 10 kg/ha N and 20 kg/ha P_2O_5 through urea and single super phosphate were added before sowing in each plot. The experimental soil was slightly saline in reaction (pH 7.7-7.8), EC (0.24-0.27), organic carbon (0.54-0.55%), total nitrogen (0.043-0.045), and available nitrogen (236 to 239 kg/ha). Molybdenum @ 20 g/ha as sodium molybdate was applied with the sticker solution in case of treatment of seed inoculation. All the inoculated treatments significantly increased the total bacterial population over control at 40 DAS, 60 DAS and post harvest soil. Highest bacterial population was obtained due to BRh. BM1 + CDM. Each of *Bradyrhizobium* strains +CDM or sludge significantly increased the fungal and actinomycetes population over the control (NI). Maximum actinomycetes population was obtained due to BRh BM 1 + sludge. Each of *Bradyrhizobium* strains + PSM gave highly significant increase in PSM over the remaining treatments at all growth stages of mungbean crop. The soil micro flora ranked in order of total bacteria > actinomycetes > fungi > PSB.

Key Words : Effect, bio-fertilizers, organic manures, soil microbial population of mungbean crop.