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ABSTRACTS & PROCEEDINGS

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EFFECT OF SIEVING ON THE ESTIMATES OF MICROBIAL BIOMASS CARBON, NITROGEN AND PHOSPHORUS FROM SEMI-ARID SOILS OF RAJKOT, GUJARAT

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Measurements were made with two soils showing different topography from semi-arid region of Rajkot (Gujarat) of the influence of sequential sieving through 0.5 mm, 1 mm and 2 mm mesh on estimates of extractable-C, N and P and also flushes of C, N and P at two depths viz., 0-10 cm and 10-20 cm by fumigation-extraction method during July 1997 to June 1998. Levels of extractable-C were highest (73 mg/g soil) in the soils of 2 mm samples of summer season (April-May). The lowest values (0.05 mg/g soil) were recorded at site-1. Values of extractable-C did not differ markedly with increase in depth. For extractable-N highest values (858 µg/g soil) were recorded at site-1 during the month of July. Soils samples of 10-20 cm depth recorded more of extractable-N than 0-10 cm soil. Also 1 mm soil samples showed highest values of extractable-N. Sieving did effect extractable-C, and N but extractable-P was not much affected by sieving at both sites at both depths.

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SYMBIOTIC PERFORMANCE OF BRADYRHIZOBIUM SPP. (VIGNA) WITH CULTIVARS OF BLACKGRAM (VIGNA MUNGO L. HIEPPER)

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Among the minor pulses black gram is extensively grown in Bidar district of Karnataka. Varieties of black gram, TAU-1, T-9 and K-3 were separately inoculated with *Bradyrhizobium* strains; GUR-3, GUR-4, GUR-5, BUR-9528 and BUR-9533. The field experiment was conducted at Agriculture College farm, Dharwad, following the randomised block design with three replications. The plants were observed for nodulation and dry matter production during the vegetative period. After harvest of the crop the grain yield was recorded in respect of different inoculants. Among the *Bradyrhizobium* strains, GUR-4 recorded maximum grain yield of 1620 kg/ha. In case of varieties TAU-1 recorded maximum yield of 1513.0 kg/ha. Similarly, maximum protein content (24.76%) was observed with inoculant GUR-4. Selective specificity of *Rhizobium* strains with black gram cultivars was discussed.

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RESPONSE OF COCONUT RHIZOSPHERE SOIL MICROFLORA TO SOME INSECTICIDES IN ROOT (WILT) AFFECTED TRACT

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The effect of two systemic insecticides, furadan and phorate and one plant product, neem oil cake, on the population of soil microflora was evaluated in coconut monocropping system in root (wilt) disease affected area. Soil samples were collected at a depth of 0-25 cm from three different, equidistant places in the basin of the palm. The soil thus collected were air-dried, homogenised and used for microbial enumeration. Bacteria, actinomycetes, fungi and free-living N_2 -fixers were counted by serial dilution and standard plate count method, while the number of chemoautotrophic nitrifiers which are highly sensitive to changes in environment were estimated by Most Probable Number method. High microbial count was seen in the pre-treatment sampling, whereas after application of the insecticides/plant products, number of bacteria, actinomycetes, fungi and free-living N_2 -fixers were significantly reduced during most of the sampling in the case of 'furadan', a common carbamate insecticide, at 3% a.i. On the other hand, the organophosphate insecticide 'phorate' at 10% a.i. proved to be less toxic as compared to furadan. But the presence of these two pesticides stimulated nitrifier population, especially *Nitrosomonas* immediately after application.

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Neem oil cake improved the microbial activity particularly that of bacteria and free-living N_2 -fixers. A very high count of free-living N_2 -fixing population was recorded on the 15th day after application of neem oil cake. Actinomycetes were significantly suppressed on 135th and 180th day of sampling when compared to control treatment. Against fungi, the effect was neutral, but *Nitrosomonas* and *Nitrobacter* were significantly suppressed in the presence of neem oil cake.

