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Effect of diazotrophic biofertilizers in combination with urea on growth and biomass production of sugarcane

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A pot experiment was conducted at Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur, Bangladesh for six months during December 2012 to June 2013 with a view to assessing the comparative performance of diazotrophic biofertilizers on growth and biomass yield of sugarcane. Carrier materials i.e. CMC-1.28 gL-1+Starch-1.02 gL-1+ MgO (1% w/w) was used to prepare liquid biofertilizers with diazotrophs viz; *Bacillus cereus, Acinetobacter calcoaceticus*, and *Rhizobium* spp. These biofertilizers along with four levels of nitrogen as urea i.e. no nitrogen, 25% N of RFD, 50% N of RFD and 100% N of RFD were used to conduct the experiment. The experiment was laid out in a Completely Randomized Design with three replications. Results revealed that treatment receiving 50% N of RFD along with *Bacillus cereus* inoculation gave the highest significant increase in all the growth parameters, biomass yield and nutrient content of sugarcane plant. The highest number of tiller per hill (8.67), number of leaves (19.33), LAI (7.57), leaf greenness (34.17), total chlorophyll (0.366 mg 100 ml-1), cane height (3.47 m), cane diameter (8.22 cm), number of internode (20.33) and biomass yield (403.44 g hill-1) were obtained in treatment receiving 50% N of RFD + *Bacillus cereus* inoculation. The highest concentrations of N (2.50%), P (0.30%), K (1.61 %), S (0.28 %), Ca (0.37 %), Mg(0.25 %), Zn (44.00 ppm) and Mn (48.00 ppm) in sugarcane leaf also found from the same treatment. Biomass yield increase of sugarcane over 100% N of RFD was 0.86% with the same treatment.

Biography

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