RESEARCH ARTICLE

Integrated effect of biofertilizers with composted sugarcane trash on productivity of green gram (*Vigna radiata* L.)

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SUMMARY

Fertilizer is one of the most important factors to increase the productivity of crops. High yield of modern agriculture are mainly dependent on chemical fertilizers. The present study is to analyze the effect of the interaction between different rates of organic fertilizer and biofertilizers. Biofertilizer has greater amounts of bacteria responsible for fixation of nitrogen. Composted sugarcane trash and biofertilizers were used in different treatment. On the 30th, 60th and 90th day of growth, results obtained proved that all the tested vegetative growth, and yield parameters were significantly increased in green gram. The highest values were recorded in treatments composted sugarcane trash alone and in combination with biofertilizers.

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Key words : Phosphobacteria, Rhizobium, Sugarcane Trash, Vigna radiata

India is an agricultural country where, about 80% of the land is used for agricultural purposes. Today fertilizer has become an indispensable input for intensive agriculture. The excessive use of fertilizers though increases crop production results in polluted environment and causes deterioration of soil health. Organic waste are composted in appropriate manner with suitable microbial inoculants and used as organic manure in crop production. This kind of conversion of waste materials into useful manure is helpful for conserving fertilizer resources as well as controlling environment pollution.

Green gram is an important world food crop which provide an inexpensive source of vegetable protein. It is an important traditional short duration high yielding dry season pulse crop which requires low inputs and serves as an excellent source of seed protein.

MATERIALS AND METHODS

The field study was conducted in Avinashilingam Deemed University.

The green gram seeds were collected from Tamil

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ANJU SINGH AND V. SOWMYA, Department of Botany, Avinashilingam Deemed University, COIMBATORE (T.N.) INDIA Nadu Agricultural University, Coimbatore. In experiments, composted sugarcane trash, biofertilizers like *Rhizobium* and Phosphobacteria were incorporated in different treatments.

T₁: Control, T₂: 12.5t/ha composted sugarcane trash, T₃: 25t/ha composted sugarcane trash, T₄: 12.5t/ha composted sugarcane trash + *Rhizobium*, T₅: 25t/ha composted sugarcane trash + *Rhizobium*, T₆: 12.5t/ha composted sugarcane trash + Phosphobacteria, T₇: 25t/ ha composted sugarcane trash + Phosphobacteria, T₈: 12.5t/ha composted sugarcane trash + Phosphobacteria + *Rhizobium* and T₉: 25t/ha composted sugarcane trash + Phosphobacteria + *Rhizobium*.

Statistical analysis:

The data obtained from the various biometrical observations and yield parameters were subjected to the statistical analysis and based on the results inference were drawn.

RESULTS AND DISCUSSION

The treatments showed a significant increase in the shoot length when compared with control. The highest value was obtained with T_9 (compost 25t/ha+ *Rhizobium* + Phosphobacterium). Thamizhvendan and Sheerin (1998) reported that combined application of *Rhizobium* and Phosphobacterium increased the shoot length of soyabean.

The treatments influenced a significant increased in the root length when compared with the control (8cms). The highest value was obtained in T_{q} (11.67cm).