The Bioscan 12(4): 1907-1914, 2017
AN INTERNATIONAL QUARTERLY JOURNAL OF LIFE SCIENCES
www.thebioscan.com

RESPONSE OF TREATED DISTILLERY EFFLUENT ON SOIL MICROBIAL GROWTH AND ENZYME ACTIVITIES IN MAIZE (*Zea mays* L.) GROWN UNDER VERTISOLS

DHAKSHANAMOORTHY DINESH[1]*, LAKSHMANAN CHITHRA[2], MARIYAPPAN SANKAR[3], KARUPPUSAMY RAJAN[4], KANDASAMY SENTHILRAJA[5], SUNDRAM RAMACHANDRAN[6] AND P. R. BHATNAGAR[1]

[1]ICAR - Indian Institute of Soil and Water Conservation, Research Centre, Vasad, Anand - 388 306, INDIA
[2] Sugarcane Research Station-TNAU, Sirugamani - 639 115, Trichy Dt, Tamil Nadu, INDIA
[3]ICAR – Indian Institute of Soil and Water Conservation, 218 Kaulagarh Road, Dehradun (UK) - 248 195, INDIA
[4]ICAR - Indian Institute of Soil and Water Conservation,
Research Centre, Governers Shola Rd, Udhagamandalam, Tamil Nadu - 643 006, INDIA
[5]Department of Agronomy, AC&RI, TNAU, Madurai - 625 104, Tamil Nadu, INDIA
[6]ICAR-NBSSLUP, Regional Centre, Jamuguri Road, Borbheta, Jorhat, Assam - 785 004, INDIA
*e-mail: ddineshars@gmail.com

KEYWORDS
Maize
TDE
Bio-Compost Microbial activities

Received on :
21.10.2017

Accepted on :
11.11.2017

***Corresponding author**

ABSTRACT

A field experiment was conducted to investigate the soil microbial growth and enzymatic activity of Treated Distillery Effluent (TDE) and Bio-compost (BC) applied in Vertisols having clay loam texture grown with Maize crop (*Zea mays*). Under split plot design with five main and sub plots with addition of organics viz., No organics; application of TDE @ 0.5 lakh litres ha^{-1}; TDE @ 1.0 lakh litres ha^{-1}; BC@ 5 t ha^{-1} and FYM @ 12.5 t ha^{-1} + biofertilizers. subplot treatments viz., addition of inorganic fertilizers at different levels of recommended dose of NP fertilizers (0 %, 50 %, 75 % and 100 %) compared with 100% recommended dose of NPK @ 150 : 75: 75 of kg N, P_2O_5 and K_2O ha^{-1}. Application of TDE 1.0 lakh litres ha^{-1} resulted higher bacterial, fungal and actinomycetes population over control at all stages. The soil enzyme activities as phosphatase, dehydrogenase and urease recorded the highest values with the application of TDE @ 1.0 lakh litres ha^{-1} over control. The soil microbial population and enzyme activities increased with the application of TDE over control. Soil microbial activity had a direct impact on the plant nutrient availability as well as other favorable properties associated with soil productivity.