**ABSTRACT**

Continuous use of inorganic fertilizers lead to accumulation of injurious heavy metal ions, polluting the soil with precipitates of hydroxides, carbonates, sulphides and sulphates. These necessitate organic amendments to soil for environmental safety and soil health. One of the organic amendments is coir pith, but raw coir pith cannot be used as such due to its high C:N ratio. Present investigation was therefore carried out to find out a suitable technology to compost coirpith and to assess its efficacy on the growth and biochemical contents of an economically important plant (Helianthus annuus L.). For this, precomposting of coir pith (CP) by EM (Effective Micro organisms) technology followed by subsequent vermicomposting was carried out. The earthworm species used for the experimental study was Eudrillus eugeniae (Kingberg) and Eisenia foetida (Savigny). The extent of composting was adjudged based on the CO2 evolution, C:N ratio, macro and micro nutrients levels of composted coir pith (CCP) after different treatments. There was an increase in CO2 evolution and the levels of macro and micro nutrients in the coir pith composted by both the worms, without much difference when compared. However, C:N ratio was higher in the vermicomposted coir pith, when E. eugeniae was used. The composted coir pith (CCP) was amended to the soil in the plots at the rate of 5 t h-1, 10 t h-1 and 15 t h-1. The control plots were left unamended. This CCP was further used to find out its influence on the growth and yield of Helianthus annuus L. such as seed germination, root length, shoot length, vigour index, plant height, carbohydrate and protein contents of the leaves were assessed. It was found that CCP showed a positive influence on the above studied parameters in the fields amended with 15 t h-1. The iodine, saponification values of the seeds was more in the plants grown in the fields amended with 15 t h-1 of CCP, the oil content was more in 5 t h-1 of CCP and the plants grown in the control plot recorded higher fatty acid level.