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EFFICACY OF EFFECTIVE MICROORGANISMS (EM) ON BIODEGRADATION OF SOLID WASTE (SW) INTO ORGANIC MANURE AND ITS INFLUENCE ON TEST PLANTS

Abstract

Solid waste (SW) collected from the Avinashilingam University campus, Coimbatore was converted into organic manure using Effective Microorganism (EM). The collected solid waste was put in a compost pit and allowed to decompose for 60 days by spraying activated EM. The biochemical parameters like cellulose, organic carbon, total nitrogen, C: N ratio, total phenol, total soluble sugars, reducing sugars, non-reducing sugars, pH and temperature profile and enzymes like catalase, peroxidase and dehydrogenase were analyzed in raw and EM –composted solid waste at an interval of 15 days for 60 days to assess the compost maturity. The results of the study revealed that there was a decrease in all the above parameters except nitrogen, catalase and peroxidase.

So, the effect of EM-SW compost on test plants like Lady's finger and Cow pea were also tested .The biometric parameters of test plants like plant height, root volume, no. of root nodules, no. of leaves /plant, fresh and dry weight of plants and no. of flowers/plant were analyzed at 30 and 60 DAS (Days After Sowing).Yield parameters of test plants like number Of flowers/plant, number of pods / plant, length of pod, single seed and 100 seed weight were analyzed at harvest (90 DAS).Biochemical parameters of test plants like total carbohydrate content, total protein, chlorophyll content, leghaemoglobin,

ascorbic acid,tocopherol, catalase and peroxidase were analzed. In Initial and experimental soil, pH, EC, available NPK content and enzymes like dehydrogenase and urease were also analyzed. Thus, it can be deduced from the present investigation that EM-SW Compost enhanced the biometric, biochemical and yield parameters of Lady's finger and Cow pea. So the biodegraded waste can be profitably used as a nutrient enriched organic manure substitute to promote the growth and yield of various crops.