An Innovative Approach for the Preparation of Cost Effective Microbiological Media

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ABSTRACT

In the present study, the household kitchen and sugar cane wastes were recycled successfully through composting. In order to get an insight regarding the type of microorganisms involved in the process of composting; microorganisms were isolated from finished compost followed by identification and determination of thermostability. Both bacteria and fungi were isolated from compost and bacterial isolates were identified belong to genus *Bacillus.* Our results revealed the presence of thermophilic or thermo-tolerant bacteria and fungi, isolated from compost.

The finished compost was then used for the preparation of microbiological media, having pH 7 and 4-5.5 for bacterial and fungal growth, respectively. Furthermore, the compost extract media were optimized by adding different concentrations of sucrose. Results revealed that, compost extract media favoured the growth of majority of indigenous microorganisms i.e; isolated from compost. Although, the scanty growth was observed but it was improved with the addition of sucrose at a concentration of 2.5% in comparison with compost extract media containing no additive sucrose. However, in comparison with commercially available media; suboptimum growth was observed. Moreover, none of the clinical isolates were found to be grown on the compost extract media; suggested further optimization of medium in terms of physical and nutritional factors in future.

Keeping in view the antagonistic potential of microorganisms in competitive environments; the antimicrobial activity of compost isolates against clinical isolates was determined by multiple screening assays. Results indicated that; *Staphylococcus aureus* was the most sensitive clinical isolate as antagonized by majority of producer bacteria via cross streak method. However, none of the clinical isolates were antagonized via agar well diffusion assay.

Keywords: Bacillus, Compost, Compost Extract Media, Cross Streak Method.