



Isolation and characterisation of bacterial strains with potential cellulolytic activities on different substrates

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Abstract : *The present study was aimed at isolation of cellulose degrading bacterial strains from soil samples and to investigate the optimum pH and temperature for their growth and cellulase activity. Two cellulolytic bacterial strains labelled as Strain-1 and Strain-2 were selected for investigation on the basis of clear zone around their colonies when tested with Congo red. The present study indicated that the selected bacterial strains were capable of growing on a wide range of temperature (4–50°C) and pH (5–11) with 26°C and 7 being*

the optimum temperature and pH, respectively for the CM Case activity of both the selected strains (0.0259 IU/ml for Strain-1 and 0.0266 IU/ml for Strain-2, respectively). Strain-1 released maximum amount of reducing sugar at 26°C (57µg/ml) and pH 11(64 µg/ml), while Strain-2 released maximum amount of reducing sugar at 37°C (65µg/ml) and pH 11(62µg/ml). The cellulolytic potential of the selected strains was assayed on the locally available untreated and pre-treated cellulosic wastes namely sugarcane bagasse, groundnut shell, corncob, and vegetable peel, under optimum working conditions. Highest cellulase activity was observed in the medium containing acid treated groundnut shell yielding 0.0259 IU/ml for Strain-1 and 0.0244 IU/ml for Strain-2, respectively.

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