Production and Optimization of L-Glutaminase with mixed substrate using Aspergillus Wentii MTCC 1901 by Solid state fermentation

Vaddadi Suman[1]* and N. M. Yugandhar[2]

[1]Research scholar, Centre for Biotechnology, Chemical Engineering Department, AU College of Engineering, Andhra University, Visakhapatnam-530003, India

[2]Assistant professor, Centre for Biotechnology, Chemical Engineering Department, AU College of Engineering, Andhra University, Visakhapatnam-530003, India

*Corresponding author

ABSTRACT

Extracellular L-Glutaminase, a hydrolytic enzyme was produced by solid state fermentation using Aspergillus Wentii MTCC 1901 with mixed substrate. Among Manila Tamarind (Pithecellobium dulce), Palmyra Tuber (Borassus flabellifer) and Tapioca (Manihot esculenta), Manila Tamarind Powder and Palmyra Tuber powder were selected and mixed in different ratios for fermentation medium. The maximum yield was obtained at the ratio of 3.5:1.5 (Manila Tamarind: Palmyra Tuber). Different parameters optimization processes were investigated on SSF namely incubation time (144hrs), temperature (30^0C), pH(6.8), and moisture content (45%), inoculum volume (2ml) and also supplemented with carbon sources, nitrogen sources, metal ions and glutamine concentration. After optimization, the productivity of L-Glutaminase obtained maximum yield of 703.8 U/gds showed an increase of 3.8 fold. The study indicates mixed substrates of agro residues Manila Tamarind Powder and Palmyra Tuber powder were more effective for the production of L-Glutaminase using SSF.

Keywords*:* L-Glutaminase, Aspergillus Wentii, Borassus flabellifer, Pithecellobium dulce, soid state fermentation.

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