

**PRODUCTION OF CYCLODEXTRIN GLYCOSYL
TRANSFERASE FROM LOCAL STRAIN BACTERIA
(*Bacillus pumilus* BK1)
USING TAPIOCA AS CARBON SOURCE**

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ABSTRACT

Cyclodextrin glycosyl transferase or CGT-ase (α -1, 4-glucan-4-glycosyl transferase, E.C.2.4.1.19) is an enzyme which catalyzes degradation of starch into cyclic oligosaccharides called cyclodextrins. Known cyclodextrins consist of 6, 7 and 8 glucose units linked through α -1, 4 glycoside.

This experiment was to study the possibility of producing CGT-ase using local strain bacteria that can utilize tapioca as carbon source.

The bacteria used in this experiment were local strain of *Bacillus pumilus* BK1 and *B. macerans* IFO 3490 as a reference. The effectiveness of tapioca as carbon source was compared with soluble starch. CGT-ase activity was measured using spectrophotometric and chromatographic (HPLC) method. During fermentation, total bacteria was counted by means of total plate count method. The fermentation was carried out in rotary shaking incubator and stirred tank reactor.

The result showed that *B. pumillus* BK1 is more capable in using tapioca as carbon source than that of *B. macerans* IFO 3490. The growth of *B. pumillus* BK1 in soluble starch and tapioca media was better than that of *B. macerans* IFO 3490. The colony of *B. pumillus* BK1 reached $14.6 - 21.2 \times 10^7$ using soluble starch and in tapioca media respectively.