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Czech J. Food Sci.

**Urban M., Beran M.,
Adámek L., Drahorád**

**J., MOKRÁ J., MATUŠOVÁ
K.:**

**Cyclodextrin
production from
amaranth starch by
cyclodextrin
glycosyltransferase
produced by
*Paenibacillus
macerans* CCM 2012**

Czech J. Food Sci., 30 (2012): 15-20

Cyclodextrins (CDs) are synthesised by bacterial extracellular enzyme cyclodextrin glycosyltransferase (CGTase, E.C. 2.4.1.19) from starch or starch derivatives. The production of α -, β -, and γ -CDs by CGTase from *Paenibacillus mace-*

rans CCM 2012 was studied in regard to the effect of the starch source (amaranth, maize) on the yield of CDs. CGTase was produced by a 3-day sterile cultivation in the laboratory Bench-top fermentor

BiostatB under aerobic conditions. CGTase was partially purified by ammonium sulfate precipitation at 60% saturation. Electrophoretic analysis (SDS PAGE) of the isolated CGTase enzyme was carried out according to the method by Laemmli (1970), the apparent molecular weight was in the range from 105 kDa to 114 kDa. All the commercially important α -, β -, and γ -CDs were detected chromatographically after the hydrolysis of the maize and amaranth (*Amaranthus cruentus*) starches with the isolated enzyme. The amaranth starch appears to be an excellent substrate for CDs