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## Synthesis of Thermo- and Acid-stable Novel Oligosaccharides by Using Dextranucrase with High Concentration of Sucrose

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A method is presented for synthesizing thermo-, acid-stable glucooligosaccharides (TASOG) from sucrose (2.5-4 M) using a dextranucrase prepared from *Leuconostoc mesenteroides* B-512FMCM. The degree of polymerization (DP) of oligosaccharides synthesized was from 2 to 11. TASOG resisted hydrolysis of its glycosidic linkages at 140°C and pH 6.0 for 1 h. It was stable at pHs ranging from 2 to 4 at 120°C. A method for synthesizing fructo-oligosaccharides (TASOF) with high concentrations of sucrose (1-3 M) by using levansucrase prepared from *L. mesenteroides* B-1355C was also developed. The DP of oligosaccharides synthesized according to the present method ranged from 2 to over 15. The TASOF was also stable at pHs ranging from 2 to 4 under 120°C. The percentage of TASOF in the reaction digest was 95.7% (excluding monosaccharides; 4.3% was levan). Both oligosaccharides effectively inhibited the formation of insoluble glucan, and the growth and acid production of *Streptococcus sobrinus*. TASOG and TASOF potentially can be used as sweeteners for food and beverages where thermo- and acid-stable properties are

required and as potential inhibitors of dental caries.

**Key words:** dextransucrase, levansucrase, thermo-stable, acid-stable, oligosaccharides

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