

## ABSTRACT

Inulin is a commercial dietary fiber which is commonly extracted from chicory roots. Its demand in food and beverage industry is currently increasing, thus production using biotechnological approach is needed. There are two main fructosyltransferases that take part in its biosynthesis: sucrose:sucrose 1-fructosyltransferase (1-SST) which initiates the conversion of sucrose into 1-kestose and fructose:fructose 1-fructosyltransferase (1-FFT) which elongates 1-kestose by adding fructosyl units until long-chain inulin is formed. Studies had shown that manipulation of those enzymes using genetic engineering will increase the production of inulin. In Indonesia, a tuberous plant called Gembili (*Dioscorea esculenta*) is known to contain inulin but its presence hasn't been studied down to the molecular level yet since its genetic information is not available. This study aims to isolate and identify 1-SST gene in Gembili in order to provide preliminary data for inulin production using biotechnological approach. Isolation of 1-SST gene was done by amplification using primers from literature as well as primers which were designed from sequence in chromosome 6 of *Dioscorea rotundata*. However, the primer pair from literature could not isolate 1-SST gene from Gembili. Self-designed primers showed a negative result as well as a false positive result due to suspected bacterial contamination in the sample. Thus, the primers that were used in this study failed to isolate 1-SST gene. Further studies using different approach of primer design is needed to successfully isolate 1-SST gene from Gembili.

Keywords: Inulin, *Dioscorea esculenta*, 1-SST, Primer Design