

Pradit Lengbamroung 2005: Cloning and Molecular Characterization of α - and β -amylases in Thai Cassava (*Manihot esculenta* Crantz).
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Starch is the primary storage polysaccharide in plants and can be degraded by amylolytic enzymes. Starch-degrading enzymes can be grouped into α -amylase (1,4- α -D-glucan glucanohydrolase; EC 3.2.1.1) and β -amylase (1,4- α -D-glucan glucanohydrolase; EC 3.2.1.2). Two clones encoding α -amylase and β -amylase from leaves of Thai cassava were isolated and sequenced. The partial clones were 705 and 1,960 nucleotides in length, respectively. Total RNA was extracted from several parts of the cassava plants and analyzed for the presence and level of expression of the two genes by using PCR DIG-labeled α -amylase and β -amylase probes. The highest expression of the α -amylase gene was observed in storage roots, lower but detectable expression was seen in leaves and stems. On the other hand, the β -amylase gene was highly expressed in leaves and storage roots.

The copy number of these genes was determined using Southern analysis indicated that α -amylase is a single copy gene, while β -amylase is present in multiple copies in the cassava genome.