CHAPTER V

CONCLUSIONS

1. Amylomaltase from *C. glutamicum* was successfully purified. The specific activity of the purified enzyme was 54.7 U/mg protein 48 folds with 55% recovery.
2. Short chain alcohols (methanol-butanol) and flavonoids (hesperidin, naringin, pinostrobin, fisetin, epicatechin and epigallocatechin gallate) could not act as acceptor when soluble potato starch was used as donor in starch transglucosylation reaction of this amylomaltase.
3. Saccharides were good acceptors especially maltooligosaccharides, in the range of G1 to G4, mannose, palatinose and sucrose. Amylomaltase was highly specific for hexose acceptor containing αC-OH at position C2, C4 and C6, with up to 4 glucose units.
4. Palatinose was chosen as a suitable acceptor for synthesis of glucoside products. The optimal condition was to incubate 5 U/ml enzyme with 7.5 mM palatinose and 1.0% (w/v) soluble potato starch in 50 mM phosphate buffer, pH 6.0 at 30 °C for 24 hours and the yield obtained was 67.2%. Palatinose glucoside products obtained were PG1-PG15 with the trisaccharide PG1 as the main product. The molecular weight of PGs were 504 Da and 666 Da and the structure of PG was palatinose connected glucose unit by α-1,4 linkage. The benefits of PGs are their low sweetness when compare to sucrose or the parent palatinose, they also have higher efficiency in retaining moisture, thus can be used to replace sucrose for better properties of food products.