

## ABSTRACT

An investigation of  $\gamma$ -glutamyl transpeptidation in the ackee plant was carried out. The process appears to be responsible for the formation of Hypoglycin B ( $\gamma$ -glutamyl hypoglycin A) in the plant. Hypoglycin A is the toxic amino acid  $\alpha$ -amino- $\beta$ -methylenc-cyclopropylpropionic acid.

The enzyme  $\gamma$ -glutamyl transpeptidase catalyses the transfer of the  $\gamma$ -glutamyl moiety from a donor amino acid or peptide to an acceptor amino acid or peptide. This enzyme was extracted from the young ackee seeds, which are a particularly rich source. The enzyme extract was purified and characterized, and certain aspects of the kinetics and reaction mechanisms were explored. The artificial substrate  $\gamma$ -glutamyl-p-nitroanilide serves both as a glutamyl donor and acceptor and provided the basis of a convenient assay method. Isotope labelled ( $^{14}\text{C}$ ) L-leucine and L- $\underline{\text{U}}$ - $^{14}\text{C}$  glutamic acid were used to elucidate the mechanism of the enzyme reaction.

The enzymic formation of hypoglycin B from the likely natural donor glutathione was directly demonstrated.