

ABSTRACT

Protein Extraction from Ackee (*Blighia sapida* K.D Koenig) Seeds

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Ackee (*Blighia sapida* K.D. Koenig) seeds are a readily available waste material from the ackee canning process in Jamaica. Ackee seeds were therefore evaluated as a potential source of edible protein, by determining the impact of the seed coat and fat content on the protein yield and investigating the presence of hypoglycin A in the extracted protein. Of the four ackee seed flours assessed, namely: whole-full fat, dehulled-full fat, whole-defatted, and dehulled-defatted, the protein yields were $7.04 \pm 0.57\%$, $10.41 \pm 0.69\%$, $7.66 \pm 0.74\%$ and $11.19 \pm 0.23\%$ db, respectively; with dehulled-defatted seed flour yielding the most protein. ANOVA indicated that dehulling and defatting had statistically significant ($p < 0.05$) effects on protein yield. The results also indicated that a minimum of five sequential defatting washes, with petroleum ether, negated the time consuming dehulling process. Detection of hypoglycin A in the protein extracted from ackee seeds was determined by Reversed- Phased Liquid Chromatography, using a Zorba x Eclipse AAA $5\mu\text{m}$ column. Hypoglycin A was present in the protein extracted from the ackee seeds and dialysis was proven as an effective method to reduce this toxin. Dialyzed protein extracted from dehulled-defatted seed flour however, was the only protein source with toxin levels within the acceptable limits for human consumption.

Keywords: Salihah Budall, ackee; *Blighia sapida*; protein extraction; ackee seeds; ackee seed flour; dehulling; defatting.