

Sunee Chotineerarat 2006: Process Development of Low Cyanide Cassava Flour from Kasetsart 50 Variety and Its Utilization in Food Products. Doctoral of Philosophy (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Associate Professor Vichai Haruthaithanasan, M.Sc. 276 pages. ISBN 974-16-2418-2

The content of cyanogenic glucosides, a toxic compound naturally found in cassava roots is highly concerned when cassava is being utilized in food products. The objective of this work was to develop the process of making low-cyanide cassava flour containing no greater than 10 mg HCN equivalent.kg⁻¹ dry weight, according to FAO/WHO codex from KU 50, a high-cyanide cassava variety mostly grown in Thailand. Various processing factors affecting the efficiency of cyanide removal including size reduction means (slicing, chopping and grating), fruit juice pressing and pulp incubation (0 to 4 hrs) were examined. The results suggested that grating of peeled cassava roots, having cyanide content around 650 to 850 mg HCN equivalent kg⁻¹ dry weight, was the most effective for cyanide removal (cyanide reduction was 68±3, 85±3, and 96±2% for slicing, chopping and grating, respectively). Pressing did not significantly improve cyanide removal ($p \leq 0.05$), but was very important for the production (i.e. drying time reduction) and quality of finished products (i.e. whiteness improvement). Grating and pressing was not sufficient to reduce cyanide content to the safe level. The incubation of grated pulp was then introduced prior to pressing. When grated cassava was incubated for at least 2 hrs, the cyanide content of dried flour complied with the safe level. By a combination of all processing steps, a reduction of cyanide by 99% could be achieved, providing a safe finished product. However, flour quality is affected by root harvest time after planting. This process is not recommend for producing flour from cassava root harvested at 6 and 8 months as cyanide content is greater than the safety level. Composite blend is the way to adjust and improve the quality of cassava flour. The shelf life of cassava flour is approximately 11 months when kept at 30 °C. This flour can be used in various bakery and Thai dessert products. This study results in the establishment of cassava flour standard and HACCP plan for the process of low cyanide cassava flour.

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