

# **Study on the improvement of quality of cassava (*Manihot esculenta*) based foods through appropriate food processing methods: nutritional, technological & toxicological aspects**

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## **Abstract:**

**Introduction:** *Cassava (Manihot esculenta)* was introduced in Ethiopia around 1960's. But the consumption was not fully practiced until 1975 E.C. Currently the plant is being distributed through out the country as a tool to tackle food insecurity. However, the distribution is not supported by proved food preparation techniques for optimal processing to eliminate the toxin and increase its nutrient density. Hence, development of suitable detoxification methods and optimal food processing with out affecting consumers acceptance is essential.

**Background:** *Cassava is the seventh largest produce of food staple in the world. It is valued for its outstanding ecological adaptation, low labor requirements, ease of cultivation and high productivity. The plant is famous for the presence of free and bound cyanogenic glucosides; linamarin and lotaustralin which are converted to hydrogen cyanide (HCN) in the presence of linamarase, a naturally occurring enzyme in cassava. The processes like cooking, grinding, drying, or fermenting are used to neutralize the cyanide.*

**Objective & Method:** *The aim of this paper is to evaluate the existing processing technologies in order to identify effective methods for reducing the cyanide content and improve nutritional quality of cassava based foods. Data was collected from four cassava producing and consuming districts of SNNPR by structured open ended questionnaire using Focus Group Discussion (FGD), key informants and secondary data from district offices. Laboratory and kitchen trial was conducted to evaluate the toxin content and increase nutrient density of cassava based foods.*

**Result:** *Few processing methods such as washing, boiling, drying and fermenting with other cereals were used to remove cyanide. In this study fermentation was found to be the best method in totally removing the cyanide content of cassava. Sensory evaluation of 6 traditionally prepared cassava based foods was conducted using expert panelist for acceptability of prepared food products at 50 and 70% cassava mix with cereals. The results show that both cassava mix are suitable (at 95%CI) for Injera, Bread (Dabbo), Kurkufa and Fosossie preparation.*

**Conclusion:** *Solar drying and fermentation were found to be the best methods in removing cyanide content. Cereal blends improve nutritional quality of cassava based foods.*

**Key Words:** *Cassava, cyanide removal, nutrient density, fermentation and sensory evaluation*