Cassava project

Since many decades some rural communities in Africa are cultivating bitter cassava for many reasons: perennial crop often annual harvesting, adaptation to climate change, tolerant to poor soil and seed availability. Most climate conditions allow people to grow it even the very poor. Women are majority in farming (with 75% of labor) who can be helped by their children.

Cassava also known as yuca, manioc, tapioca is one of the most drought-tolerant crops, capable of growing on marginal soils and feeding about a billion people, mostly in Africa and Asia. It is the staple food of about a billion people. Cassava, however, contains the cyanogenic glucoside linamarin that, when ingested releases HCN that is very toxic and may cause severe disease and even death. Therefore, before consumption, cassava must be processed to breakdown the linamarin and remove the volatile cyanide.

When malnourished children eat raw cassava or flour that has not been processed correctly to remove linamarin, they are exposed to very high levels of thiocyanate in their blood which can cause sudden irreversible paralysis. Children may wake up one morning, limping or only able to crawl. This condition will remain unchanged throughout the child's life. This disease is called "konzo". The link between konzo and eating raw or not well prepared cassava is for those who prepare the food not obvious, because the konzo "happens" while bitter cassava is eaten daily. The incidence of konzo is the greatest in the Democratic Republic Congo, in some rural villages 1 out of 4 children are affected.

Linamarin can be removed by the enzymatic activity of **Linamarase**, or beta-D-glucosidase (EC 3.2.1.21), present at low levels in the tubers but at a much higher concentration in the leaves of the cassava plant. Removal of linamarin in traditional processing cassava usually takes a long time, 4 days to 4 weeks depending on the variety and initial concentration of total cyanide. A project team is testing a simple process that takes only about 4 hours, meaning that food prepared in the morning can be safe in the afternoon. Once confirmed, the WG Food Safety Training and Education will train trainers, verbally and using pictures on how to prepare cassava such that it is safe to eat. These trainers then should train other trainers, with the purpose that eventually all food handlers know.

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