as magnesium, calcium, iron, zinc, and molybdenum and make them unavailable for human body utilization and can cause the deficiency of micro nutrients [34]. It also form stable bond with protein and may inhibit the activity of some enzymes, such as amylase and proteases [35]. However, phytic acids also have antioxidant and ant carcinogenic properties. Indeed, phytic acids can reduce free ion radical generation and thus peroxidation of membranes by complexing iron, and phytate may protect against colon cancer [36].

Table 3. Effects of varieties and processing methods on anti-nutrient contents of cassava

Variety	Processing method	Hydrogen Cyanide (mg/100g)	Phytic acid (mg/g)
Qulle	Boiled - Sun Dried	0.76±0.09^{b}	4.27±0.21^{d}
	Soaked - Sun Dried	0.35±0.03^{d}	3.44±0.03^{e}
	Sun Dried	0.96±0.06^{a}	4.92±0.01^{b}
Kello	Boiled - Sun Dried	0.36±0.02^{d}	5.07±0.15^{b}
	Soaked - Sun Dried	0.20±0.03^{e}	4.65±0.06^{c}
	Sun Dried	0.57±0.01^{c}	5.65±0.18^{a}
CV (%)		5.53	2.81

Where, CV = coefficient of variation; values are mean ± SD and mean values followed by the same letter in a column are not significantly different at 5% level of significance.

Soaking cassava roots for 48 hr reduced hydrogen cyanide contents to minimal values and the percentage of reduction being more pronounced than boiling process in both cassava varieties. The significant reduction the hydrogen cyanide content observed in this study might be explained as a result of enhanced hydrolysis process of cyanogenic glucosides by the enzyme linamarase. Similar results were reported previously by [37]. In addition, the probable justification for cyanide reduction by hydrolysis could be due to size reduction of cassava into small pieces might create easy access for contact between the enzyme and cyanogenic glycosides resulting in higher hydrolysis.

Similar results were also reported by many researchers including [38] who obtained 95.41% reduction by heap fermentation followed by sun drying. In addition, with regard to the reduction in hydrogen cyanide content during the soaking process, [39] observed that, soaking in water cause tissue cellular disruption that results in comparatively greater susceptibility to the actions of bacteria, as indicated by the fall in pH values, and the enzymes α-amalyse and endogenous linamarase. Correspondingly, in this study, the pH of soaked cassava samples were significantly reduced.

Cyanide is the most toxic factor restricting the consumption of cassava roots. Indeed, cassava, particularly its bitter varieties, has a cyanide level higher than the [40] a recommendation, which is < 10 mg cyanide equivalents/kg DM, to prevent acute toxicity in humans. The values obtained were also below the recommendation given by FAO and far below the previously published data of 10 to 500 mg cyanide equivalents/kg dry matter [41] in various food products containing cassava flours. The present study suggested that cassava tuber must be soaked for 48 hr and then drying properly in order to get maximum reduction in HCN content.

Conclusions: The finding of the current study indicates that a cassava chip of both varieties has a good source carbohydrate, energy, vitamin C and some essential mineral elements. The level of cyanide and phytic acid in the sun dried cassava sample is within the acceptable limit. With careful selection of good choice of processing method, the nutritional potential of cassava can be fully harnessed. In this present study, we recommend soaking - sun drying over boil – sun drying and sun drying as a choice of processing method, as this method significantly reduces the anti- nutrients and conserves more nutrients.

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