

# World Nutraceutical Conference and Expo

July 13-15, 2015 Philadelphia, USA

## Antinutrient content, vitamin constituents and antioxidant properties in some value-added Nigerian traditional snacks

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Popularly consumed traditional snacks kulikuli (groundnut-based) and kokoro (from whole maize) consumed mainly in the Northern and South-western parts of Nigeria respectively, were enriched with some well known nutraceuticals: pepper (*Capsicum annuum*); ginger (*Zingiber officinale*); sweet basil (*Ocimum gratissimum*); orange peels (*Citrus sinensis*); cocoa powder (*Theobroma cacao*); soya beans (*Glycine max*) and roselle (*Hibiscus sabdariffa*) in the ratio 1 or 2%. The enriched and non-enriched (control) snacks were analyzed and compared with respect to their sensory qualities (to ascertain consumer's acceptability) using a 7-point hedonic scale, antinutrient content, vitamins A & C and antioxidant properties. The sensory attributes of all the enriched snacks were accepted as good, very good and extremely good except with the addition of ginger which had average acceptability. Results on the anti-nutrients showed that relative to the controls, 2% addition of cocoa powder or pepper to kokoro and kulikuli, significantly increased phytic acid content ( $p \leq 0.05$ ; 6.59 vs. 8.24mg/g phytic acid and 6.47 vs. 7.55mg/g phytic acid) respectively. The study showed that nutraceutical enrichment significantly ( $p \leq 0.05$ ) increased vitamins A in kokoro and kulikuli at 1% addition in the range 2290.35-2780.35units/g; 2914.35-3582.52units/g, respectively when compared with the controls. Kulikuli enrichment at 2% level increased vit C content from 1.73 to 2.65 mg/g as compared with kokoro (4.53 to 6.07mg/g). The total phenolic content, reducing ability and free-radical scavenging ability were higher in the enriched snacks than the control. The free phenolic extracts from enriched snacks had a significantly higher ( $p \leq 0.05$ ) antioxidant activity than the non-enriched products. Results suggest that value addition to these traditional snacks especially with ginger, sweet basil and roselle confers on them higher functionality by increasing their vitamins and antioxidant activity in addition to their traditional role as snacks.

### Biography

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