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The effect of cooking and fermentation on the funtional and nutritional properties of co-fermented Walnut/Maize

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Abstract

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In Nigeria co-fermenting cereals with African walnut (*Tretracarpidim conoforum*) as infant complementary food is uncommon. Walnut locally called 'asala' is eaten boiled. Fermented maize (*Zea mays)* gruel which is of poor protein quality is widely used by low socio-economy mothers as infant complementary food. Objective of this work was co-fermentation of African walnut with maize to get an infant complementary food of improved nutritional quality. Mixture was prepared by co-fermenting 300g cooked walnut with 700g raw maize w/w (CWM) for 72h at 30^{O}C. Co-fermented raw walnut with raw maize (RWM) served as control. Each product was wet- milled, sieved and dried at 60^{o}C and analyzed for: Proximate composition, minerals, anti-nutrients, amino acids, fatty acids, phospholipids, sterols contents and consistency using standard methods. RW/M was higher in ash , moisture, crude protein , crude fibre, ether extract and carbohydrate than CW/M. RW/M was also richer in glycine, serine, proline, leucine, aspartate, and arginine. Cooking had no effect on lysine, methylonine, isoleucine, glutamate, phenylalanine, hidtidine and tyrosine because their values were comparable in both samples. CW/M had reduced values of antinutrients than RW/M. RW/M was more enhanced in Na, K, Ca, Mg, Zn, Fe, P and in mystric, stearic and linoleic acids. CW/M was more enriched in palmitic, palmitoleicand linolenic acids. In phospholipids, RW/M was higher in posphatidylcholine, lysophosphatidylcholine while CWM was higher in phosphatidylethanolamine, phosphatidylserine, phosphatidylinsitol while cholesterol, ergosterol, campesterol, stigmasterol, savanesterol and sistoserol values were comparable in both samples. RW/M could serve as complementary food of improved nutritional quality.

Biography

Mojisola Oyarekua completed her Phd in Human Nutrition in the year 2006 from the University of Ibadan, Nigeria. She is a Senior lecturer and Head of Department of Microbiology of the Federal University, Oye-Ekiti, Nigeria. She has published 21 papers in reputed journals both within and outside Nigeria.