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Moringa Leaf Powder/soybean Flour Blends Improve the Nutritional and Antioxidant Status of Akamu Powder

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Abstract

The prevalence of both macro and micro nutrient malnutrition in the developing countries is alarming. To worsen to already bad scenario is the rise in the incidence of non communicable diseases (NCDs) leading to the so called double burden of disease. *Moringa oleifera* leaves have been reported to contain high amounts of proteins, micro nutrients as well as a rich array of phytochemicals. *Moringa* is also readily available in the tropics and thrives in nutrient marginal soils. These make these leaves a good candidate for the reduction of not just nutrient deficiencies problems but also in NCDs alleviation since some NCDs have been associated with oxidative stress. Akamu or ogi as it is known in Nigeria is a cereal starch based gruel used majorly as a complementary food for infants and as part of breakfast for older children and adults. It is normally supplemented with soybean flour to boost its nutritional content. The high cost of soybeans in the recent time has created a need to search for cheaper alternatives to partially or wholly replace soybean in akamu supplementation.

It is based on this background that the influence of *moringa* leaf powder (MLP) and soybean flour blend incorporation into akamu powder (AK) was investigated. Soybean flour (SBF) was blended with equal weight of MLP and thereafter this blend was incorporated into dry akamu powder at ratios of 10 %, 20 %, 30 % and 40 %. Unsupplemented AK and 40 % soybean flour (SBA) served as controls. It was found that incorporation of SBF/MLP mix significantly improved the protein, vitamins and mineral contents of the akamu powder relative to unsupplemented AK. The antioxidant status was also significantly elevated above unsupplemented AK. Akamu supplemented with 40 % SBF/MLP had significantly greater antioxidant activity than SBA. Sensory evaluation revealed that overall acceptability was inversely related to level of supplementation with SBF/MLP. *Moringa oleifera* leaf powder could therefore be a veritable candidate in the strategies for the reduction of malnutrition and NCDs in the developing countries. The cultivation, utilisation and consumption of this plant resource should therefore be encouraged.

Keywords: Akamu, antioxidant, moringa leaf powder, nutrient, supplementation

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