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Development and Evaluation of Complementary Food from Blends of Maize and Soya Flour Enriched with Moringa Powder

Berhan Fikru[1] and **Kaleab Baye**[2]
[1]Food, Medicine and Healthcare Administration and Control Authority, AddisAbaba, Ethiopia
[2]Addis Ababa University, Ethiopia

The objective of the study was to develop complementary food from maize and soybean flours enriched with moringa leaf powder for young children. The sample blends were formulated with different proportion and Faffa corn soya blend was used as a control. Linear programming (LP Nutri-survey software) was used predict blend ratio in order to meet the standards. Analysis were made for different formulated blends and compared with the control and recommended daily allowance (RDA). The four complementary blends (1, 2, 3 and 4) were formulated based on the protein, energy, mineral (calcium, iron and zinc) and vitamin (vitamin A and C) content of the food crops. Standard procedures were used to determine the nutritional values in formulated blends: moisture, crude protein, total ash, crude fiber, crude fat, carbohydrate and energy; minerals: Ca, Fe and Zn; vitamins: vitamin A and C; chelating agents: phytate and tannin; functional properties and sensory preference were also reported. The overall results indicated that nutrient content of Blend 1(control) was 16.32 % protein, 10.02 % fat, 63.76 % carbohydrate, 422.31 kcal energy, 64.47 mg calcium, 3.8 mg iron, 1.87 mg zinc, 0.19 mg vitamin A and 1.19 mg vitamin C; Blend 2 was 17.16 % protein, 10.04 % fat, 60.57 % carbohydrate, 429.84 kcal energy, 330.40 mg calcium, 6.19 mg iron, 1.62 mg zinc, 6.33 mg vitamin A and 4.05 mg vitamin C; Blend 3 was 20.26 % protein, 10.24 % fat, 57.51 % carbohydrate, 418.79 kcal energy, 417.44 mg calcium, 9.26 mg iron, 2.16 mg zinc, 8.43 mg vitamin A and 4.19 mg vitamin C and Blend 4 was 16.44 % protein, 8.79 % fat, 64.11 % carbohydrate, 417.42 kcal energy, 242.4 mg calcium, 7.09 mg iron, 2.22 mg zinc, 3.69 mg vitamin A and 4.72 mg vitamin C, respectively. The difference was found between all means statically significance ($P<0.05$). Sensory evaluation showed that the formulated blend 1 and 4 were preferred by semi-trained panelists. Blend 4 (corn soya blend plus moringa) had better in terms of its mineral and vitamin content than FAFFA corn soya blend and comparable with WFP proprietary products CSB+, CSB++ and fulfils the WHO recommendation for protein, energy and calcium and vitamin A. The suggested formulation with moringa powder can therefore be used as a complementary food to improve the nutritional status of Ethiopian children and also help solve problem associated with protein energy and micronutrient malnutrition for young children in developing countries, particularly in Ethiopia.

Key words: Corn Soya blend,proximate composition, micronutrient, mineral chelating agents, sensory attributes and complementary foods.