

FORTIFICATION OF MICRONUTRIENT WITH STEVIA LEAF IN WHEAT BASED FOOD PRODUCT

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ABSTRACT

In this study, the wheat refined flour bun prepared by standardized method and fortified by two way natural source (stevia leaf powder) and synthetic source (edible folic acid powder). The result were analyzed for physical or sensory characteristic by 9 point hedonic scale and nutritional characteristic by standardized method. In the highest folic acid content found in synthetic bun. Moisture content in synthetic bun was also found higher than control and stevia bun sample.

Key words: Stevia leaf, fortification, Micronutrients, hedonic scale.

INTRODUCTION:

Human beings need vitamins and minerals known as "micronutrients", because our bodies need them only in minute quantities for growth, brain development and immunity against diseases. Micronutrient deficiencies are often called "hidden hunger" because they do not manifested themselves in immediate physical signs; instead they result in a host of insidious consequences; such as infant and child mortality, birth defects, attenuated child growth and development, productivity and detrimental health problem that can directly affect intellectual, potential and indirectly impact productivity and national development, particularly devastating problems in developing countries. The major micronutrient deficiencies, based on prevalence and severity of consequences involve vitamin A, thiamine, folic acid, vitamin C, iron, iodine and zinc. Food fortification is one important tool for improving nutritional states in developing countries. Fortification is the addition of small quantities of vitamins and minerals to foods, which regularly consumed by large parts of the population. In Africa, some thirty six countries are routinely fortifying salt with iodine, and several of these, including Benin, Cameroon, Mali, Nigeria and Zimbabwe have achieved high rates of salt iodization. Over 70% of all new born babies are now protected from brain damage due to iodine deficiency. The natural fortification of micronutrient (Folic acid) in wheat flour by stevia leaf for preparing flour product like (Fortified bread, bun, biscuits and chapattis etc. is the great way to improving the nutritional quality of products.

MATERIAL AND METHODS:

The present investigation entitled "Fortification of micronutrients (Folic acid) with stevia leaf in wheat based product" was formulated to examine the physical and nutritional characteristics of the developed products, which fortified with different source characteristics analyzed and cost of the developed products was also analyzed physical qualities was analyzed by 9 point hedonic scale by 10 trained panel members, moisture content was estimated according to standard method and folic acid content estimated by chemicals.

RESULT AND DISCUSSION:

The result on various aspects are described one by one in following section

Table :1 Nutritional Composition of stevia leaf/100 gm. (dry wt. basis)

S.No.	Nutrients	Quantity
1.	Moisture (gm.)	7
2.	Energy (Kcal)	270
3.	Protein (gm.)	10
4.	Fat (gm.)	3
5.	Total CHO (gm.)	52
6.	Folic Acid (µg)	240
7.	Ash (gm.)	11
8.	Crude fiber (gm.)	18
9.	Calcium (mg)	464.4
10.	Iron (mg)	55.3

Table : 2 Moisture content (%) in developed products

S.No.	Sample	R ₁	R ₂	R ₃	R ₄	R ₅	Mean
1	Control	22.0	19.0	16.0	15.0	14.0	17.20
2	Steviabun	20.0	18.0	16.0	14.0	12.0	16.00
3	Synthetic bun	24.0	20.0	18.0	16.0	14.0	18.40

The data pertaining to moisture content have been presented in Table-2. Moisture content varied significantly among the different buns, the ranges of variation being 16.0% to 18.5% the highest moisture content was present in synthetic buns and the lowest in stevia bun.

Table : 3 Folic acid content (%) in developed products

S.No.	Sample	R ₁	R ₂	R ₃	R ₄	R ₅	Mean
1	Control	00.05	00.04	00.03	00.02	00.01	0.03
2	Stevia bun	0.14	0.13	0.12	0.11	0.10	0.12
3	Synthetic bun	2.80	2.60	2.55	2.45	2.40	2.56

The result of Folic acid content of different bun have been presented in Table -3. There are more variation in folic acid content which is ranged 0.03 to 2.56 were recorded. Synthetic bun are statistically superior in respect of folic acid content as compared to remaining others. The Synthetic bun Showed Folic acid content of 2.56 stevia bun content 0.12 and control content 0.03 percent respectively. However, control gave the lowest folic acid content of 0.03 percent.

Table : 4 Mean Table of sensory quality of samples

S.No.	Quality	Sample			Mean
		Control	Stevia	Synthetic	
1.	Colour	7.6	7.0	8.6	7.7
2.	Texture	8.4	5.4	7.0	6.9
3.	Flavour	8.4	7.0	9.4	8.3
4.	Taste	8.0	6.0	9.0	7.7
5.	Over all acceptability	8.3	6.8	9.8	8.3
	Mean	8.1	6.4	8.5	8.0

The data on sensory evaluation of the developed product presented in table 4 revealed that the total mean score of sensory qualities of wheat products was 8.0, whereas control product show 8.1 score, synthetic bun shows 8.5 score and stevia bun shows 6.4 score, which is lowest score in comparison other products.

CONCLUSION

The present investigation was carried out for the development of folic acid rich Food product using stevia leaf and synthetic edible folic acid powder. The use of fortification process in wheat flour and prepared the wheat products, which are low in cost and to improve the nutritional quality of food product and to improve the health status of pour groups and to over come the problem of "MICRONUTRIENT MALNUTRITION"

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