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Research Article

DEVELOPMENT AND SENSORY EVALUATION OF GRANOLA BARS FORTIFIED WITH FLAXSEED

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ABSTRACT

Flaxseed (*Linum Usitatissimum*) is a unique functional food having exceptional mix of essential polyunsaturated fatty acids, omega 3 alpha linolenic acid, omega 6 linolenic acid (LA), which promotes health benefits. The research work was carried out for development and sensory evaluation for acceptability of flaxseed in granola bar. Flaxseed was incorporated to the amount 20, 30 percent in standardized recipes and sensory evaluation was done with the help of 9 point hedonic scale in reference to appearance, taste, texture and flavor by pre trained panel of judges. Flaxseed incorporation enhanced the flavor and taste of standardized recipes. Granola bars fortified at both the levels 20% and 30% were acceptable. The mean score was 8-9 depicting great liking for the recipe. Products prepared with flaxseed not only taste great but also provide enormous health benefits as flaxseed has been shown to help reduce the risk of heart diseases, protect against cancer symptoms, reduce cholesterol and even ease the effects of type 2 diabetes. Due to enormous health benefits along with good taste recipes incorporated with flaxseeds are recommended to promote good health.

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INTRODUCTION

Flaxseed or linseed (*Linum Usitatissimum*) popular known as alsin, jawas, Aksebija in Indian language is a blue flowering rabi crop and a member of family linaceae (Anonymus, 2000). Ground flaxseed is particularly beneficial because the grinding process releases the nutrients that are not easily available from whole seeds. Flaxseed oil is low in saturated fatty acids (9%), moderate in monosaturated fatty acids (18%), and rich in polyunsaturated fatty acid (73%) (Cunnane *et al.* 1993).

The flaxseeds contains approximately 40% lipids, 30% dietary fibre and 20% protein. The chemical composition varies considerably among varieties and also depends on the environmental conditions in which the plant is grown. Cotyledons contain 75% of the lipids, and 76% of protein is found in the seed. The endosperm contains only 23% of the lipids and 16% of protein (Daun *et al.* 2003; Oohma, 2003).

Flaxseed helps in lowering the risk of chronic diseases like heart disease, stroke, and cancer, as well as lower LDL "bad" cholesterol. Omega-3 is an important component of almost all cell membranes these fatty acids are necessary and need to be balanced to maintain good health. (Edward, 2012). Flaxseed ingestion has been linked to reduce risk of cardiovascular disease (Carter 1993; Mantzioris *et al.* 2000; Paschos *et al.*

2007) also there is a potential role for flaxseed in management of diabetes and hypercholesterolemia (Zhang *et al.* 2007).

In functional foods arena, flaxseed has resurged as a new potential functional ingredient with a vast array of medical benefits. Flaxseed supplemented food products are gaining popularity because of its high content of polyunsaturated fatty acids, protein, soluble fiber and phytochemicals. Flaxseed is also being incorporated in the feed of animals to improve the nutritional quality of the meat and fat obtained from them.

Objective

Flaxseed being low on cost, high in nutritive value and having potential health benefits was used in the standard recipes for development and sensory evaluation and their acceptability of flaxseed in granola bar.

MATERIAL AND METHODS

Selection of recipes: Selection is based on high trends amongst people and their goodness.

Material required: The raw materials wheat, honey, oats, flaxseeds, peanuts jaggery etc were obtained from local market.

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Sample preparation: Three samples were prepared of selected recipes. Standardised recipe was indexed as sample one or control termed as “C”, the second sample containing 20% of the flaxseed was termed as “S1” and third sample containing 30% of flaxseed termed as “S2” in standardized recipes.

Preparation

Granola bars- Oats and flaxseed blends were prepared in three samples with ratio 100:0(C), 80:20(S1), 70:30(S2). 40g peanuts and 50g jaggery paste was added to three samples. The prepared mixture was poured in the moulds and was refrigerated for 30 minutes for setting. The prepared sample was then cut into sticks and were presented for sensory evaluation by the trained panelist.

Sensory evaluation: Sensory evaluation was the best suited method for the evaluation of selected recipes. Granola bar were evaluated for overall acceptability (color, appearance, flavor, texture, taste) and was carried out as per 9 point hedonic scale, by the help of 6 semi trained evaluators. Sensory evaluation was done to determine the most acceptable ratio of flaxseed incorporation in the samples and overall acceptability of the same.

RESULTS AND DISCUSSIONS

The sensory evaluation was carried out as per 9 hedonic scale, the sensory characteristics that were taken into consideration includes color, taste, appearance, texture, flavor, and overall acceptability. Among the two fortified sample, the 20% sample had highest overall acceptability compared to control.

Granola bar

Granola bars are highly nutritious snack for kids and youngsters and addition of flaxseed make it surpassingly more nourishing and appetizing. Evaluation through organoleptic properties of granola bar revealed the sample fortified with 20% of flaxseed attained higher score values and was highly acceptable by the evaluators. The scores ranged in 8 to 8.1 which conclude that they are liked very much.

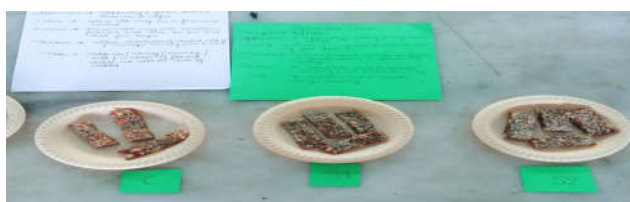


Figure 1 Sample of Granola Bar

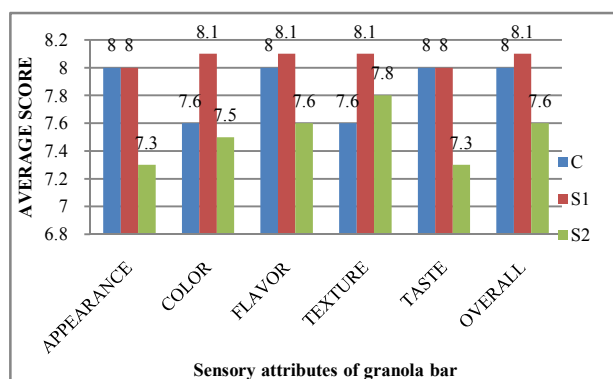


Figure 2 Average score of organoleptic evaluation of variations of granola bar.

Granola bars made with standardized recipe and the sample 1 achieved similar score in comparison to the control sample this proves that the addition of 20% flaxseed increase the taste as well nutrient value of the bar as it attained similar scores on appearance and taste attributes and achieved higher score in color flavor, texture and overall acceptability than control. Depicting the fact that enhanced nutritive value is obtained after adding Flaxseed to the granola bar without altering the original taste. Padmashree *et al.* (2013) evaluated sensory quality of flaxoat nutty bar on attributes like colour, aroma, taste, texture and overall acceptability scores of all these bars revealed that bar prepared by using 13% oat flakes, 5% puffed wheat, 3.5% wheat semolina, 5.5% flax seed, 9% cashew nuts, 3.5% pista, 7% almond, 4.5% honey, 7.0% dairy whitener, 3.0% rice bran oil, 1.0% glycerol, 3.0% maltodextrin and 35% jaggery were highly liked as it received an overall acceptability score of 8.41 on 9-point Hedonic scale.

CONCLUSION

Flaxseed being high in dietary fiber and linolenic acid is advised to be incorporated in various food items to achieve better health conditions and improve the dietary intake as it is enriched with various health benefits. On the basis of sensory evaluation Granola bar fortified with 20% of flaxseed resulted in better quality and taste as high overall acceptability was achieved. As flaxseed doesn't have high flavor character so it doesn't alter the standard recipe instead it makes the recipe more nutritious and wholesome. Flaxseed promotes heart health and prevent CVD as it contains omega-3ALA, lignans and soluble fiber it also reduces cholesterol. Thus, consumption of food products fortified with Flaxseeds may be advised for maintaining healthy heart and other life style related disorders.

References

- (Anonymous 2000). Oil world statistics update.oil world.31:9-10
- Carter J (1993). Potential of flaxseed oil in baked goods and other products in human nutrition. *Cereal Foods World* 38:753-9.
- Cunnane SC *et al* (1993) High linolenic acid flaxseed (*Linum usitatissimum*): some nutritional properties in humans. *Br J Nutr* 69:443-453
- Daun, J., Barthet, V., Chornick, T., Duguid, S. (2003). Structure, composition and variety development of flaxseed. In: Thompson, L., Cunnane, S. edition. *Flaxseed in Human Nutrition*. 2nd edition Champaign, Illinois, pp. 1-40.
- Mantzoris E *et al.* (2000). Biochemical effects of a diet containing food enriched with n-3 fatty acids. *American Journal of Clinical Nutrition* 72:42-8.
- Oomah BD (2001) Flaxseed as a functional food source. *J Sci Food Agric* 81:889-894
- Paschos GK, Magkos F, Panagiotakos D B, Votteas V, Zampelas A (2007). Dietary supplementation with flaxseed oil lowers blood pressure in dyslipidemic patients. *European Journal of Clinical Nutrition* 61:1201-6.

Padmashree, A., Sharma, G. K., & Govindaraj, T. (2013). Development and evaluation of shelf stability of flax oat nutty bar in different packaging materials. *Food and nutrition sciences*, 4(5), 538.

Zhang W *et al.* (2007) Dietary flaxseed lignin extract lowers plasma cholesterol and glucose concentrations in hypercholesterolaemic subjects. *British Journal of Nutrition* 98:1-9.

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