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Introduction of Soy Enriched Bakery Products among the Urban and Rural Bakers

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***Abstract* – Soy being a rich protein source, having various health benefits, an attempt was made to introduce soy based bakery products among the urban and rural mass in Coimbatore district. As a part of the study, bakers from urban and rural areas of Coimbatore district were given training on the preparation of soy based bakery products like biscuits (sweet & salt), bun, puff, cake etc. at the bakery unit of TNAU, Coimbatore. The soy enriched bakery products were prepared according to the standard recipe. As an impact of the training, three urban and a rural baker had introduced soy biscuits (sweet & salt), soy enriched cakes and buns at their bakery outlets in Coimbatore district. The feed back on the training was collected after post training. The bakers had expressed their satisfaction in introducing nutritious and novel products from the feed back.**

***Keywords* – Soy Enriched Bakery Products, Bakers, Training, Feed Back, Bakery Outlets.**

I. INTRODUCTION

The role of soybean in overcoming malnutrition and protein deficiency has been amply recognized in terms of biological value of protein utilization. Soybean not only provides larger quantities of protein but a protein with superior quality. By blending with cereals, it provides a well balanced diet. The emerging health benefits of soy consumption range from lowering risk of heart disease and certain types of cancer to alleviate menopausal symptoms and enhancing bone strength. Many different beneficial components have been identified. These include soy phytoestrogens, soy proteins and saponins [1]. Defatted soy flours have been successfully incorporated in breads and other baked goods. This is done primarily for functional properties of soy proteins and to increase the protein content of the product [2].

A major but as yet not fully tapped outlet for soy protein products is the bakery industry. The products of bakeries have been recognized as most efficacious means of delivering supplementary nutrition to weaker and vulnerable nutrition to our society who are suffering from malnutrition. Much attempt is being made to popularize bakery among all because these products are considered easy, convenient and rather in expensive means of taking food in hygienically prepared ready to eat form. Wheat flour, the major ingredient of bakery products, is deficient in lysine and has low protein content. Use of soy flour which has high protein content with lysine, not only increases the protein content of bakery products but also improves their amino acid balance [3].

One way of using soybean is to incorporate it in biscuit. Process for making soy-fortified biscuit has been standardized for adoption at home and industry levels. The soy-fortified biscuits have a great potential for combating protein-calorie malnutrition at low cost [4]. The biscuit industry has been growing at an average rate of 15% during the past 3 years and this is expected to be maintained in coming years [5]. Breads and biscuits are major products accounting for 80% of the total bakery products in India.

Advances in soy ingredient technology have resulted in products that can perform many functions in foods such as emulsification, binding and texture. Soy protein product acceptance has grown because of such functional properties, in addition to their excellent nutritional quality. Reasons for non utilization of soybean at domestic level in rural as well as in urban areas are said to be the beany flavour associated with soybean and its products, presence of some anti nutritional factors and lack of awareness among the people, particularly the factors about the high nutritional value of soybean and its utilization technology. Earlier studies on awareness creation on soy based bakery products among and urban mass in Coimbatore district, Tamil Nadu revealed that more than eighty per cent of the rural and urban mass rated the soy incorporated sweet biscuits and cakes to be very good, indicating bakery products prepared by incorporating defatted soy flour were acceptable among the public [6].

In our country people, irrespective of their location and age like to take snack foods during their breakfast and evening tea. Hence attempts were made to introduce soy based bakery products like biscuits, cake, bun etc. among the urban and rural mass at the bakery outlets through training given to the bakers.

II. MATERIALS AND METHODS

I. Preparation of soy enriched bakery products:

Soy based bakery products were prepared by incorporating defatted soy flour in bakery products like biscuits, bread and cakes according to the standard recipes developed at Soybean Processing Unit, CIAE, Bhopal, India. The defatted soy flour produced by Sakthi Soya at Coimbatore was used for preparing the products. The products were prepared at the Post Harvest Technology Centre, TNAU, Coimbatore.

A. Soy enriched biscuits:

Biscuits possess several attractive features including wider consumption base, relatively long shelf-life, more convenience and good eating quality [7], [8].

Soy blended biscuits were prepared by incorporating 25 per cent of defatted soy flour. The process of soy based

biscuit consists of creaming of sugar and shortening along with baking powder and baking soda, mixing of other ingredients, sheeting, molding and baking at 200°C for 15 min. Variants of biscuits like sugar, salt and sugar free biscuits were also prepared.

B. Soy enriched bread:

Soy blended bread was prepared by incorporating 10 per cent of defatted soy flour in the dough mix. The mixed dough was divided, molded and placed directly in a greased pan to ferment and baked at 220°C for 20 min.

C. Soy enriched cakes:

Soy blended cake was prepared by creaming the shortening and the sugar together followed by gradual addition and mixing of eggs and finally the rest of ingredients. The batter is poured into greased pan and baked at 190°C for 30 min. Twenty five percent of defatted soy flour was used for preparing the cakes.

II. Training on soy incorporated bakery products to bakers from urban and rural areas:

The bakers from urban and rural areas of Coimbatore district were contacted for the training programme. In one set of training, urban bakers were trained on the preparation of soy incorporated bakery products like biscuits, bread and cake. In the next batch, bakers from rural areas of Coimbatore participated. The importance of soy in food was explained in the theory session and the preparation of soy enriched bakery products was demonstrated in the practical session during the training. The bakers were provided with a manual on the preparation of soy based bakery products. (Fig. 1)

A pre-evaluation and post evaluation of the training, was also carried out by means of a questionnaire to know about the awareness level of the bakers on soy and their willingness to adopt the same.

Fig.1. Training to bakers on soy enriched bakery products

III. Impact assessment of the training on soy based bakery products:

Follow up of the training was taken up by contacting the bakers who attended the training to know the status of adoption of soy enriched bakery products at their outlets. The feed back on the same was collected in a questionnaire.

III. Results and Discussion

I. Soy enriched bakery products:

Composite flour technology for wheat supplementation with protein rich materials like soybean could be an approach to overcome the malnutrition.

Hands on training on Soy enriched bakery products like biscuits (sweet & salt), cakes, breads, buns etc. were given to the trainees. Earlier studies on soy biscuits revealed that since biscuits are predominantly based on refined wheat flour (RWF) and the blending of RWF with oilseed such as soybean can upgrade the nutritional quality. The results pertaining to composition of defatted soy flour revealed that it is rich in protein content i.e. 62.73 per cent, which justifies its utilization as a novel ingredient in nutritional food preparations [9].

II. Pre and post evaluation of training to bakers on soy based bakery products

The pre and post evaluation of the training on the preparation of soy based bakery products was carried out by a prepared questionnaire. The urban bakers were of age group from 23 to 40 years and the rural bakers were of 22 to 47 years of age. The minimum level of qualification for the urban bakers was SSLC and the maximum qualification was MBA degree. In the case of rural bakers, the qualification of all was up to +2. The urban bakers were employed as cake masters, in charge of bakery departments, marketing personnel in the bakery etc. As in the case of rural bakers, they were entrepreneurs, masters in bakeries. The bakers were asked to cite the reasons for undertaking the training on soy based bakery products. Out of the seven urban bakers, 5 of the bakers cited the reason to be to commercialize novel bakery product and 2 of the bakers as to supply nutrient rich product. In the case of rural bakers, majority had cited the reason to be the same as in the case of urban bakers. The bakers were asked about their awareness on soy and its products (Fig. 2). It could be seen from fig. 2 that among the urban bakers, 70 % had responded that they were aware of soy and its benefits through newspaper and none of the rural bakers were aware of soy and its benefits.

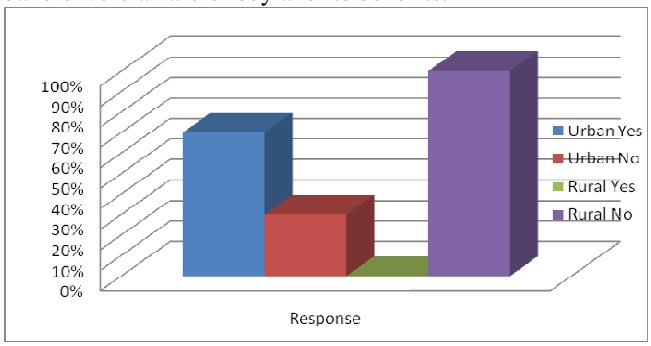

Fig.2. Awareness on soy among urban and rural bakers

The bakers also filled up the post evaluation questionnaire on the training. Both urban and rural bakers expressed the training to be satisfactory. The bakers also mentioned that they were confident in making the products and willing to commercialise in the market.

III. Adoption of soy enriched bakery products by bakers as an impact of training:

Based on the follow up on the training to the bakers it was found that 3 of the urban bakers namely M/s AKR Foods Pvt.Ltd., Nilgiris Dairy Farm Pvt. Ltd., & KR Bakery and a rural baker Thangu Cake Shop at Coimbatore had introduced soy based biscuits, cake and

also bun in their outlets. (Fig.3 a &b) Soy biscuits (sweet and Kara), soy stuffed puffs, soy cake and soy-based bun were produced daily in the respective bakeries mentioned above. The market response for the products at their outlets was found to be good as mentioned by the bakers in the questionnaire. They also expressed their satisfaction in introducing these products in their outlets.

Fig.3. (a &b) Soy enriched bakery products at bakery outlets

IV. Conclusions

Training of the bakers paved way for adoption of the technology for producing soy based bakery products by some of the bakers for the first time and thus these products are available commercially at their outlets in Coimbatore.

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