UTILIZATION OF COMPOSITE FLOUR FOR DEVELOPMENT OF VALUE ADDED PASTA

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ABSTRACT
The present research work on preparation and evaluation of composite flours were carried out to develop nutritious flour from various coarse grains and green leafy vegetables Composite flour were prepared with Chickpea (CF) pearl millet (PMF) maize, MF dehydrated drumstick leaf powder in different proportions T1 (CF-10%, PMF-10%, MF-10%, DDLF-5%) T2 (CF-15%, PMF-10%, MF-10%, DDLF-10%) and T3 (CF-20%, PMF-10%, MF-10%, DDLF-15%) Organolaptic evaluation was done of the pasta. Result showed that treatment T1 got higher sensory scores for colour, flavour, texture and overall acceptability when compared with control and other samples therefore it can be concluded that Incorporation of coarse grains and green leafy vegetables can improve sensory quality of pasta.

Key Words- Pasta, Organolaptic Evaluation, Composite Flour.

INTRODUCTION
Milligan et al. (1981) defined composite flour as a mixture of flours, starches and other ingredients intended to replace wheat flour totally or partially in bakery and pastry products. Shittu et al. (2007) also agreed with that as the composite flours used were either binary or ternary mixtures of flours from some other crops with or without wheat flour. The use of composite flours had a few advantages for developing countries such as Malaysia in terms of: i) the saving of hard currency; ii) promotion of high-yielding, native plant species; iii) a better supply of protein for human nutrition; and iv) better overall use of domestic agriculture production (Berghofer, 2000; Bugusu et al., 2001). Composite flour is considered advantageous in developing countries as it reduces the importation of wheat flour and encourages the use of locally grown crops as flour (Hugo et al., 2000; Hasmadi et al., 2014). Local raw materials substitution for wheat flour is increasing due to the growing market for confectioneries (Noor Aziah and Komathi, 2009). Thus, several developing countries have encouraged the initiation of programmes to evaluate the feasibility of alternative locally available flours as a substitute for wheat flour (Abdelghafor et al., 2011).

Pasta is a stable food product that is produced mainly by mixing durum wheat semolina and water (Sozer, 2009). In recent years, pasta has become recognized as a healthy food, with a low fat content, no cholesterol and a low glycaemic index (Cleary and Brennan, 2006). In pasta processing, gluten is considered to be the most significant factor related to pasta cooking quality (Dexter and Matsuo, 1978). Gluten consists of gliadin and glutenin and is responsible for elasticity and al dente chewability of pasta, which is highly appreciated by consumers (Sozer, 2009).

MATERIALS AND METHOD
The investigation was conducted in the Department of Foods and Nutrition, Ethelind School of Home Science, Sam Higginbottom University of Agriculture, Technology And Sciences (SHUATS), Allahabad. The details of the materials, experimental procedure and techniques to be adopted during the course of the investigation were as follows:

Experimental Site: The present investigation was carried out in the Nutrition Research Laboratory, Foods and Nutrition, Ethelind School of Home Science, SHUATS, Allahabad.

Procurement of Raw Materials: The raw materials for preparation of composite flour like Pearl millet, Maize, Chickpea and drumstick leaves were purchased from the local market of Allahabad district. Only the fresh and sound leaves were collected. These leaves were washed with the help of clean water so as to remove the dirt and other disease causing organisms and were tray dried for 60 to 65°C for 6-7 hours powdered and stored in air tight containers.

Preparation of Composition Flour: The composite flours were obtained by the mixing of flours made of pearl millet flour, maize flour in the ratio various coarse grains and green leafy vegetables. Chickpea (CF) pearl millet (PMF) maize, MF dehydrated drumstick leaf powder in different proportions T1 (CF-10%, PMF-10%, MF-10%, DDLF-5%) T2 (CF-15%, PMF-10%, MF-10%, DDLF-10%) and T3 (CF-20%, PMF-10%, MF-10%, DDLF-15%).

Pasta Production: Pasta were prepared by blending of composite flour with warm water. The mixtures were thoroughly worked to form doughs. The formed dough was allowed to rest for 20 mins, then kneaded. Dough was extruded using an extruder. The Pasta strands were put in cleaned aluminum trays and oven dried at 60°C.

Fig. 1: Flow chart for Pasta production

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Organoleptic Evaluation: Sensory evaluation of the Pasta for acceptability was done by a panel of 10 judges. The panel members were instructed about the product and its characteristics. Panel members were selected based on their performance in initial evaluation trials. Sensory descriptors of the samples were colour and appearance, taste and flavour, body and texture and overall acceptability. There are ten numbers of judges for the sensory evaluation. The nine point hedonic scale was used for sensory evaluation (Srilakshmi, 2007).

Statistical Analysis: Analysis of variance technique (ANOVA) and critical difference were used to analyze the data.

RESULTS AND DISCUSSION

Organoleptic Evaluation of Pasta: In Pasta, T₂ scores the best with regard to all sensory characteristics viz. colour and appearance (9.06 ± 0.36), body and texture (8.00 ± 0.64), taste and flavour (8.75 ± 0.25) and overall acceptability (8.83 ± 0.39) (Figure 1). Texture plays an important role in determining the final acceptance by the consumer, and it is one of the predominant criteria for assessing pasta quality. Similar studies were done by Gurpreet Kaur, Savita Sharma et al. (2011), produced pasta enriched with different plant proteins (mushroom, defatted soy flour). The pasta containing 8% mushroom powder increased the cooking time. Studied on Sensory Characteristics of Durum Wheat/Unripe Whole Banana Flour Blends for Spaghetti Formulation

Sensory acceptability of pasta strongly influenced by sensory attributes.

Table 1: Percentage of ingredients used to prepared composite flour.

<table>
<thead>
<tr>
<th>S.I.</th>
<th>Ingredients (gm)</th>
<th>T₀</th>
<th>T₁</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Wheat flour</td>
<td>100</td>
<td>65</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>2.</td>
<td>Pearl millet flour</td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Maize flour</td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Chickpea flour</td>
<td></td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>5.</td>
<td>Dehydrated drumstick leaf powder</td>
<td></td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

CONCLUSION

The study indicated that Pasta produced from T₂ (CF-10%, PMF-10%, MF-10%, DDLF-5%) were preferred to others. The overall results showed that substitution of wheat flour with coarse grains Pearl Millet Flour, Maize Flour, Chickpea Flour and drumstick leaf flour can be used in the production of Pasta.

REFERENCES


