

Fortified Soy Foods. A Novel Source of Proteins for Common Man

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Madhya Pradesh has been richly rewarded by nature's bounty and has a very rich plant biodiversity it also has a very large area under forest cover. Forest are the rich source of medicinal plant and fruit trees. *Madhuca indica* popularly called *Mahua* is present in large numbers and is used for collection of its flower rich in sugars, vitamins and calcium. The forest produce Mahua is collected on large scale and is commonly for liquor production. The tribal production involved with collection show poor nutritional status and are suffering from various diseases due to poor immunity. The present study focuses on providing a unique soy food fortified with *Mahua* extract. It deal with food science parameters and compares the modified soy product with other common traditional foods.

Keywords: Fortified Soy Foods, Proteins, Common man.

The tribal area of Madhya Pradesh suffer from food related deficiency disorders, prominently protein deficiency which result in poor growth and disease susceptibility of tribal children. The tribal health status has received a steady focus for health development programmes resulting in simple to complex foods distribution. The result have been very modest and need a more practical low cost viable approach. The present study has been designed to function in the tribal environment utilizing common ingredients available in our state M.P. is known as soy state but shows poor profile of soy use, more than twenty four percent of state area is under forest cover but little forest wealth is used. Mahua tree common to M.P. produce flowers of economic importance and its collection, storage and transport is a part of tribal life. Mahua and its unique sugar composition can be exploited for development of novel foods which can be a part of mid day meal programme for schools. A low cost soy flour mahua sugar fortified biscuit could

provide necessary protein and other growth factor for optimal growth pattern.

MATERIALS AND METHODS

Mahua was procured from market and 100 gm was soaked in 250 ml of water for 4-6 hour. The soaked Mahua flower was crushed by hand to pulp. The fluid with pulp was filtered through fine mesh cloth to remove impurities, pulp fiber, pulp solid to give a pale brown liquid containing approximately 32% of sugars.

Table 1.

| Analysis of Mahua flower constituents | Percentage |
|--|------------|
| Moisture | 18-22% |
| Total sugars | 52-53% |
| Protein | 1.5-2% |
| Cellulose | 18-19% |
| Ash | 4-4.2% |
| Phosphorus | 100-240 mg |
| Calcium | 100-140 mg |
| Iron | 15-100 mg |

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Table 2.

| Soy flour % | Maida % | Mahua sugar % | Biscuit code |
|-------------|---------|---------------|--------------|
| 25 | 75 | 50 | A |
| 50 | 50 | 75 | B |
| 75 | 25 | 75 | C |

Soybean procured from market was milled to fine flour size and for the preparation of biscuit soy flour with mahua sugar liquid, fat, baking powder and essence were added to prepare pliable dough set in baking tray kept in oven at a temperature of 120°C for a period of 40 mins. The tray was removed from oven and kept for cooling. The prepared biscuits were tested through organoleptic test, Composite scoring test, a quality test designed so that specific characteristic of product can be rated separately. The test is useful in grading products and comparison of quality.

RESULTS AND DISCUSSION

The *Mahau* flower has rich diverse sugar content which imparts a typical sugary flavor to the material prepared. The organoleptic test indicates

high acceptability for mahua sugar extract fortified soy flour biscuit. Code A confirming its use as a novel nutrition food. The study opens up new avenues for use of *Mahua* syrup as substitute of honey and its industrial production in rural areas.

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