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Formulation And Evaluation of Nutrient Rich instant Sprout Noodles

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ABSTRACT
The study aims to making nutrient rich sprouts noodles. In that three sprouts moong dal, chickpea, and moth bean are used as a base (10,10,10gm) and three different flour used wheat flour, refined wheat flour,semolina flour (64gm) and made three different noodles. Along with noodles for enhancing taste of noodles prepared one masala. In that masala some spices which have high amount of nutritional value and some dried vegetables. They dried by using tray dryer. The dough of sprouts and flour was extruded then dried by using tray drier. The sensory analysis and proximate analysis of noodles was carried out. Also study the shelf life of the noodles and masala which sustain best before 8 months the 8gm protein content present in noodles it is a good source of energy which gives 364.30Kcal by SOP/C/16 method. Water absorption, cooking time, breaking length and sensory attributes of cooked noodles was carried out.
Keywords: sprouts, wheat noodles, refined wheat noodles, semolina noodles, sensory analysis.

INTRODUCTION

The history of noodles can be dated back at least to the (206-220AD) in china then Japanese enovy introduced Chinese noodles in japan and then noodles were spread to other countries like asian countries (4) then Chinese noodles making technology in Europe in that noodles were evolved into current pasta product. (2) Noodles are type of food made from unleavened dough which is rolled flat and cut stretched or extruded into long strips or strings noodles stored for future use for short term storage noodles are a staple food in many culture. Noodles was mostly preferred by the children. Some micronutrients of noodles are very are very much essential for growing young children. Noodles can be made from variety of raw material but this study includes these ingredient wheat flour, semolina flour, refined wheat flour. Sprouts like mung bean, moth bean, chickpea. Salt, the nutrition content in dried noodles are protein, carbohydrate, sodium, potassium, selenium. Noodles likes mostly because of its easy preparation and sensory attributes.(1) Major durum wheat producing country in the world is india and its annual production is 2.5 million but it is not used for baking and chapati. Noodles of wheat flour are important part in the diet of many countries. popular variety of wheat flour is triticum durum.(1) It consist harder kernel grain protein, higher yellow pigment is also used in making of noodles. Durum wheat is used in higher lutein product. Many researchers have established composition like protein gluten strength it is important for cooking quality of noodles.(1) Composition of semolina and sprouts improve chewy texture firm bite and resistance to over cooking of the noodles in any noodles making procedure starches are the main ingredient with addition of other ingredient(3). composition of wheat flour and sprout which is rich in dietary fibers, vitamins, and bioactive compounds wheat flour noodles have higher consumer acceptance with good texture. Wheat flour is made from grinding up parts of the wheat grain, there are three main parts of the grain endosperm, protein, and starchy part germ they rich in protein , fat, vitamin bran is the fibre rich part . composition of refined wheat and sprouts white flour of wheat is the refined wheat flour is made from only the endosperm, brown flour includes the germ and bran whole grain flour includes all the all the three parts.(5) (7) white flour has a naturally yellowish colour but is often bleached or mixed with oxidizing chemicals to produce a white colour. (6) Sprouts contain higher amount of protein which is essential for women and men. Sprouts like moth bean contain amylase ,protein, ash, starch, minerals. Moth bean also acts as a binder. Green gram dal contain protein, carbohydrate , fibre, folate, minerals. (4) (8) Mung bean flour in noodles could improve the properties of extruded noodles (12). Chickpeas contains protein, carbohydrate, minerals and it reduces cholesterol

level in human (9) These all sprouts are added because it have high amount of protein and minerals. Sprouting is an important factor for affecting food quality. Spices are played a vital role in the life style of people they play numerous role including as coloring, flavouring, agent food additives and medicine spices like turmeric, fenugreek, mustard have wide variety of functions they protects body against disease. Spices like bay leaf ,cinnamon, mint ,chilli powder, black pepper, cumin, mustard , clove, cardamom, anise, sugar, salt are used in masala. All ingredients used in masala have high amount of nutritional value and health benefits (10).Along with spices dehydrated vegetables are added in the masala. By using tray drier dried the vegetable at 60C (1) Cabbage, peas, carrot, capsicum, onion, spring onion, are used. Vegetables contain minerals(11). Extrusion could be an useful method for noodles production (13). Therefore, the objective of this project was to use sprouts, vegetables ,spices, as an ingredient to make noodles of high nutritional quality. The effect of these was investigated in terms of textural, cooking, and sensory of noodles.

MATERIAL AND METHODS

Wheat flour, Refined wheat flour, Semolina , Sprouts (chickpea, moth bean, mung bean) , salt, spices (turmeric, clove, black pepper, cinnamon, bay leaf, chilli powder, cumin, cardamom, mustard seed, anise) was purchased by local market and vegetables (tomato, capsicum, peas, cabbage, spring onion, carrot, onion) was purchased by vegetable market.

Preparation of noodles

The basic noodles formula consisted of 64gm flour (wheat flour , refined wheat flour, semolina flour) , and 12gm chickpea, 12gm moth bean, 12gm mung bean, 50ml water, 1gm salt. Three different sample were prepared as per composition three formulations were processed the prepared three dough was placed to rest in a plastic bag for 25min to 30min then roll the dough with rolling pin and then by using instrument extruded the noodles. Then dry the noodles by using tray drier at 60C noodles strands were 2mm in width and 1mm in thickness.

Preparation of masala

Weight all the spices and grind the spices by using kitchen aid mixer add dehydrated vegetables. Vegetables are dehydrated by using tray dryer.

Cooking quality

The noodles was boiled in water. Until it cooked completely the end point is when the middle part that is centre of the noodles become transparent .

Analytical Method

Determination of moisture content

The moisture content of is determined by using the hot air oven method.(AOAC,2000) Calculation:

$$Moisture (\%)= (W1-W2)/W1X100$$

Where,

$W1$=weight(g) of the sample before drying

$W2$= weight of the sample after drying

Determination of total Ash content

The muffle furnace method is used to determine the total ash content of the food sample

$$Ash(\%)= Weight\ of\ ash\ /weight\ of\ sample\ x100$$

Determination of protein content

The Kjeldhal method is used to determine the protein content in the food sample.

$$Protein (\%)= (A-B)xNx1.4007x6.25/w$$

Where,

A=Volume (ml) of 0.2N HCL used in blank titration

N=Normality of HCL

W= weight of sample

14.007= atomic weight of nitrogen

6.25= the protein nitrogen conversion factor.

Determination of Fat content

The fat content is determined by using the soxhlet apparatus method.

$$Fat (\%)= weight\ of\ fat\ x\ 100/weight\ of\ sample$$

Sensory evaluation

All three types of noodles sprouts and wheat flour , sprouts and refined wheat flour, sprouts with semolina flour. Theyare analyzed for sensory analysis. The hedonic rating is used to measure the acceptability of the 9 point hedonic rating to scale food product. The particular faculty members and students are asked to rate noodles.

RESULT AND DISCUSSION
Proximate Analysis
Proximate analysis of sprouts noodles are presented in table. It was found that moisture content, fat content, protein content, ash content.

Table 1: Chemical composition of nutrient rich instant sprout noodles

Proximate analysis	SW (Sprouts and wheat flour)	SR (Sprouts and refined wheat flour)	SS (Sprouts and semolina)
Moisture (%)	12.5	15.4	13.9
Ash (%)	1	0.64	1.5
Protein (%)	8	8	7
Fat (%)	0.90	0.84	0.77

The data regarding chemical composition of nutrient rich instant sprout noodlesis presented in Table 1. In case of moisture, The results were found to be significant. The maximum (15.4%) moisture percentage was recorded by SR. The minimum (12.5%) moisture percentage was Recorded by SW, SS. With respect To protein, the results were found to be significant. The Highest (8%) protein content recorded by SW,SR and It was at par with SS. The fat content of flavour coated cashew Kernels differs significantly with respect to different Treatments. The highest (0.90%) fat Content was recorded by SW and it was at par with Treatments SR (0.84%), SS (0.77%).

Table 2: Chemical composition of nutrient rich instant sprout noodle masala mix
The data regarding chemical composition of nutrient rich instant sprout noodle masala mix is presented in Table 2.

Sr no.	Test Done	Unit	Results(Per 100g)
1	Total Energy	Kcal	365.30
2	Carbohydrate	G	72.90
3	Protein	G	4.27
4	Total Fat	%	0.18
5	Moisture	%	8.82
6	Ash	%	7.83
7	PH		5

Table 3: Functional property of nutrient rich instant sprout noodle masala mix

Sr. no.	Product	Water (ml)	Before (cm)	After (cm)
1	Sprout and wheat flour	15	6	6.8
2	Sprout and refined wheat flour	10	4.2	4.8
3	Sprout and semolina flour	10	3.5	4.3

The data regarding chemical composition of nutrient rich instant sprout noodle masala mix is presented in Table 3.
The data regarding the sensory evaluation of nutrient rich instant sprout noodle masala is presented in figure 1.On the basis of sensory evaluation SW was found to be best.

CONCLUSION
The Sprouts noodles of three different flours : wheat flour, Refined wheat flour, Semolina flour along with masala is prepared with acceptable physiochemical and sensory characteristics. It is a rich source of fibre and minerals ,some amount of protein. Sprout noodles consumed diabetic patient also. The ingredient used for preparing noodles are available at reasonable price in the satara local market. In addition the refined wheat flour and semolina flour noodles had white color ,while the wheat noodles appeared bright yellowish colour. The final composition of the noodles gives 365.20Kcal.
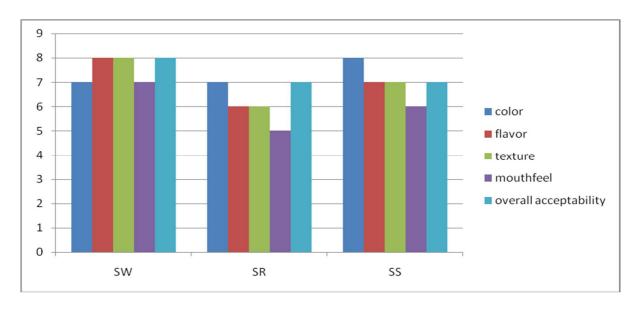
Figure 1: Sensory evaluation of nutrient rich instant sprout noodle masala mix

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