

Effect of incorporation of carrot powder in wheat flour



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Effect of Incorporation of Carrot Powder in Wheat Flour for the Preparation of Stick Noodles Kripa Shakya¹ and Anup Halwai²

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Noodles were prepared by incorporating carrot powder in the percentage of 5, 10, 15 and 20 in wheat flour. The main objective of the work was to prepare the nutritious noodle enriched with Vitamin A.

Sensory evaluation of the carrot powder incorporated stick noodles revealed that the product prepared with 5% carrot powder and 95% wheat flour was found to be most acceptable. The chemical analysis of the most acceptable product were found out to be 10.8% moisture, 0.6% fat, 10.3% crude protein, 0.7% crude fiber, 1.7% total ash, 0.1% acid insoluble ash, 75.8% carbohydrate and 12166 I. U. Vitamin A content. Keywords: Noodle, wheat flour, carrot powder, Vitamin A

1. Introduction:

Noodles are among the oldest forms of the processed foods consumed in Asia and other parts of the world (Hou, 2001). Noodles can be prepared from wheat flour alone and/or in combination with other ingredients such as rice flour, buckwheat and mung bean.. In the noodle preparation, a crumbly dough is formed which is then passed through a series of rolls to form a sheet. The sheet is then slit to produce noodles (Hou, 2001). Carrot (*Daucus carota*) is a root vegetable, usually orange or red- white blend in color with crisp texture when fresh.

Carrot gets its characteristic and bright orange color from ? – carotene, which is metabolized into vitamin A in human when bile salts are present in

the intestines. Carrots are also rich in dietary fiber, and antioxidants. Carrot can also promote colon health as it is rich in fiber. Vitamin A deficiency remains widespread in many countries in South Asia and contributes to a significant proportion of preventable blindness (Bloem, 1997). Vitamin A supplementation can reduce the risk of blindness in case of the children (Hennig et al. 1991).

In Nepal, two types of noodles are consumed. They are stick (sinke) noodle and instant noodle. In case of instant noodle, different ingredients and nutrients has been added to improve the nutrient content and to increase the consumer appeal such as iron, calcium and vitamin A and different flavors like spinach, chicken and vegetables. But, to the best of my knowledge, in case of noodles, no such studies have been conducted. The main objective of this research is to prepare the noodle enriched with Vitamin A and to analyze its chemical composition of the product. 2.

Materials and methods: The raw materials used for the noodle making for wheat flour, carrot powder and salt. Five samples of stick noodles were prepared and labeled A (0% carrot powder and 100% wheat flour), B (5% carrot powder and 95% wheat flour), C (10% carrot powder and 90% wheat flour), D (15% carrot powder and 85% wheat flour) and E (20% carrot powder and 80% wheat flour). Wheat flour was cleaned by passing through a fine sieve screen. Fresh carrots were washed with potable water, sliced, dried at 100 ± 2 °C for 6 hours. The dried carrots were then powdered in the grinder.

Salt was bought from the local market. The method involved cleaning of raw materials, sieving, mixing, of water, kneading, sheeting, cutting, drying and

packaging. The raw materials were weighed and mixed manually. 1% of salt was added to the mixture. The required amount of water (33%) was added to the flour. The mixture was kneaded manually to form dough and then left for 30 minutes. The dough was passed through rollers to obtain a sheet. Then it was passed through the cutter to cut into strips. The noodles were dried at a low humidity room for 3 days and then sun drying was done for 1 hour.

The products were packed in a plastic bag to protect from the moisture absorption and also to extend its shelf-life. Sensory evaluation of the five noodles samples were performed. Ten panelists were asked to score for the quality attributes viz. , color, flavor, texture and taste in order of their preference according the 9-point Hedonic rating test described by Ranganna (1994). Chemical analyses were performed for the best sample from the sensory evaluation The moisture content and ash content were determined as per AOAC method (1995) Fat rude fiber content and protein content were determined as per Ranganna, 1994.

Vitamin content was determined by HPLC as prescribed by Pharmacopeia, 1985. The product was also tested for physical properties such as length, color, edge and thickness. The cooking quality of the product was also determined in terms of cooking time, water absorption capacity, volume expansion and cooking loss as per Poudyal, 1988. 3. Results and Discussions The moisture content of the wheat flour was determined as 12. 2% and its gluten content was determined as 10%. To make noodles, the wheat flour containing 10-12% gluten is suitable. The quality of the wheat flour to make noodles depend on the gluten.

If the gluten content is low, there is chance of breakage of noodles. Similarly, the moisture content of the carrot powder was determined as 9.5%. Sample A with 5% carrot powder had the highest score in terms of quality attributes although the quality attributes among other products except product D (with 20% carrot powder) were not significantly different. ($p= 0.05$) In case of stick noodle, according to Nepal Standard, the moisture content must not exceed 12.5%. The moisture content of both type of noodle is less than 12.5% and there is no big difference between the moisture content of the two products.

The protein content of stick noodle must not be less than 8% on dry basis. The protein content of plain noodle was found to be 10.2% and that of carrot noodle was found to be 10.3%. There was not much difference in the protein content because the protein content in carrot is very low. Fat is an energy giving constituent. Fat content of the plain noodle was found to be 0.6% and that of carrot noodle was found to be 0.6%. The fiber content of the plain noodle was found to be 0.35% and that of carrot noodle was found to be 0.7%. The fiber content is high in carrot.