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Study on Formulation and Sensory Evaluation of Vermicelli Made from Proso Millet

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Abstract:- Millets have been considered wholesome snack option and they are also gaining popularity as dietary supplements for people with diabetes and other metabolic problems. Proso millet is rich in nutrients such as protein, potassium and dietary fibre that help to regulate blood pressure levels. People from all walks of life prefer vermicelli, an easy-to-make, ready to make food product that is popular despite changing tastes and lifestyles. Therefore, an effort was undertaken to create value-added vermicelli based on proso millet by replacing half of the processed proso millet flour in the typical vermicelli recipe. To enhance the functional qualities of vermicelli, additional experiments were conducted wherein black gram dhal flour was substituted for wheat semolina. In an attempt to enhance the nutritional value of prepared vermicelli, fenugreek seed powder was added at a level of one percent. It was discovered that vermicelli containing one percent fenugreek seed powder was satisfactory. The organoleptic and cooking qualities of prepared vermicelli were recorded and evaluated with that of control. Thus proso millet can be successfully incorporation as an ingredient in making of healthy vermicelli that can be suitable for people with metabolic disorders.

Keywords:- *Proso Millet, Vermicelli, Sensory, Fenugreek Seed, Life Style Diseases.*

I. INTRODUCTION

Millets are considered as drought resistant crops, which also grow with little input but produce more when well-managed. Given the growing global population and depleting water resources, these crops will be crucial for human consumption in the future. Millets are an underappreciated resource in the majority of affluent nations, despite being essential food crops for huge number of people in some regions of Africa and Asia.

Deeply ingrained food insecurity and malnutrition must be addressed by promoting food production diversification at the national and household levels with rising yields. Large amounts of phenolics and other substances found in millets help to maintain human health. The addition of snacks and meals made of millet considerably enhanced the nutritional status of schoolchildren. Millet's technological attributes, including flaking, extrusion, malting, baking, and parboiling, present numerous chances for processing and value enhancement. Small millets are used to make wonderful ethnic meals that are popular with both urban and rural consumers. Millets consists functional components that can help to prevent the deterioration of human health. To achieve food security, millets must be produced and consumed with immediate attention.

Proso millets are commonly grown in many countries such as India, China and Africa. Developed countries started to adopt proso millet as healthy alternative to traditional diet. This study aimed to determine the suitability of proso millet (PM) for making vermicelli I combination with additional ingredients such as fenugreek flour and black gram powder.

II. MATERIALS AND METHODS

The study was conducted at the Department of Food Science and Technology, Palar Agricultural College, Vellore. The necessary ingredients required for study was purchased from nearb market. The procured proso millet grains were subjected for washing, cleaning and subjected to further treatments.

- *Preparation of Proso Millet Flour*

Proso millet was processed in the manner shown in Fig 1. As shown in Fig. 2, the fenugreek was processed to reduce its bitter taste before being mixed with the flour for the composite mix.

- *Development of Mixed Flour*

Flours of proso millte, fenugreek and black gram dhal were mixed and sieved to fine powder. Different proportions of proso millet flour, black gram dal flour, and fenugreek seed powder were combined with refined semolina to create various blends.

- *Preparation Procedure of Prosomillet Vermicelli*

Pulverized flour was kneaded by adding sufficient amount of water. After kneading the dough for the necessary amount of time, it was set aside. The dough was then manually extruded, pre-dried for an hour at room temperature, then dried for four hours at 60 °C using a cabinet dryer.

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➢ *Organoleptic Evaluation*

Sensory evaluation of developed proso millet based vermicelli were evaluated for sensory parameters by scoring method using nine point hedonic scale by fifteen semi trained panel members.

Table 1. Composition of Different Treatments of Proso Millet Vermicelli

Sample	Semolina(%)	Proso Millet Flour (%)	Black Gram Flour (%)	Fenugreek Seed Flour (%)
C	100	-	-	-
T_1	80	20	-	-
T_2	60	40	-	-
T_3	40	50	-	-
T_4	20	60	25	5

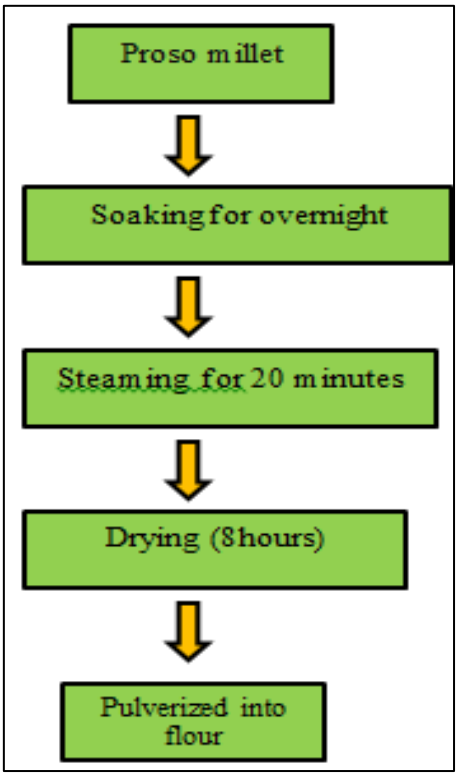

Fig 1. Preparation of Proso millet flour

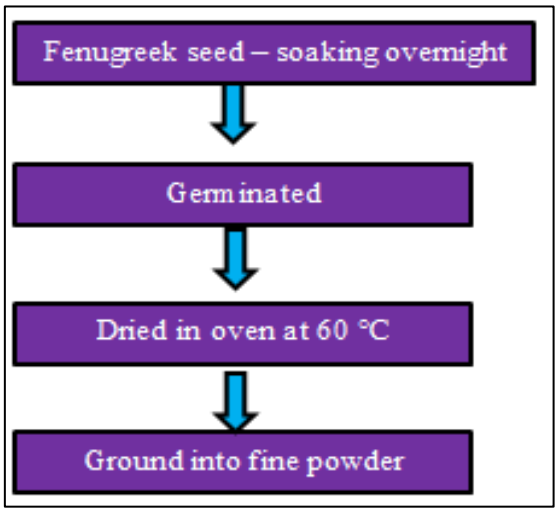

Fig 2. Preparation of fenugreek seed powder

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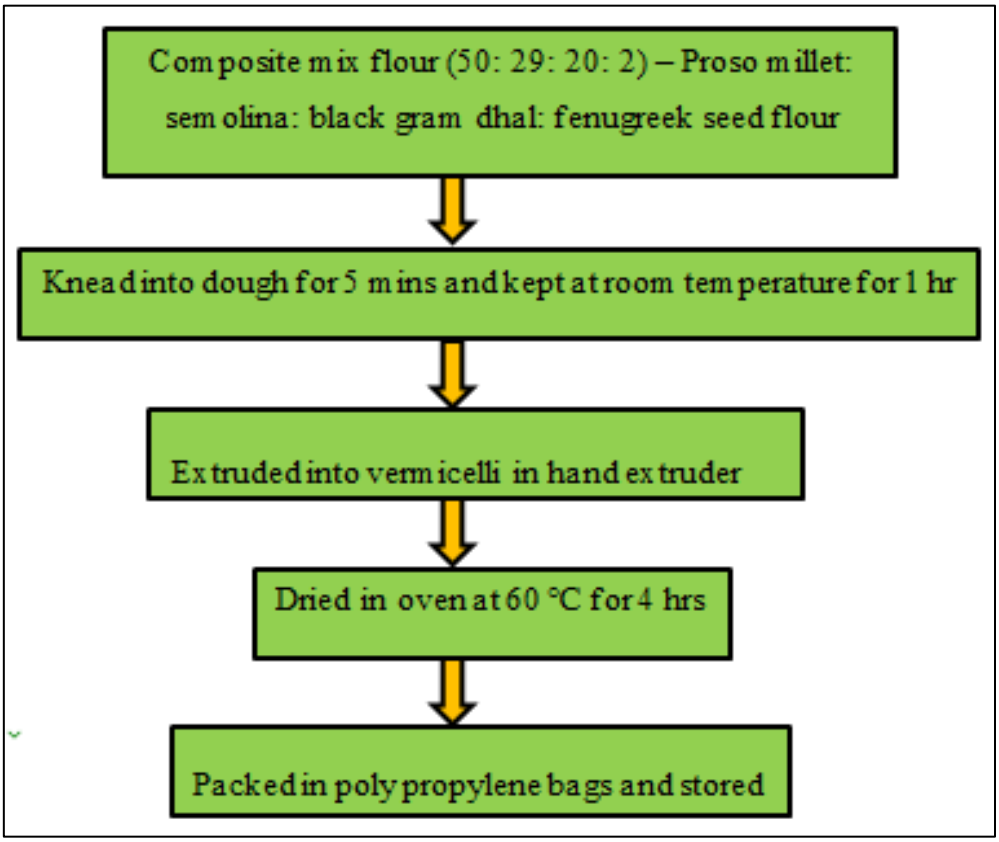

Fig 3. Flow Chart for Preparation of Proso Millet Vermicelli

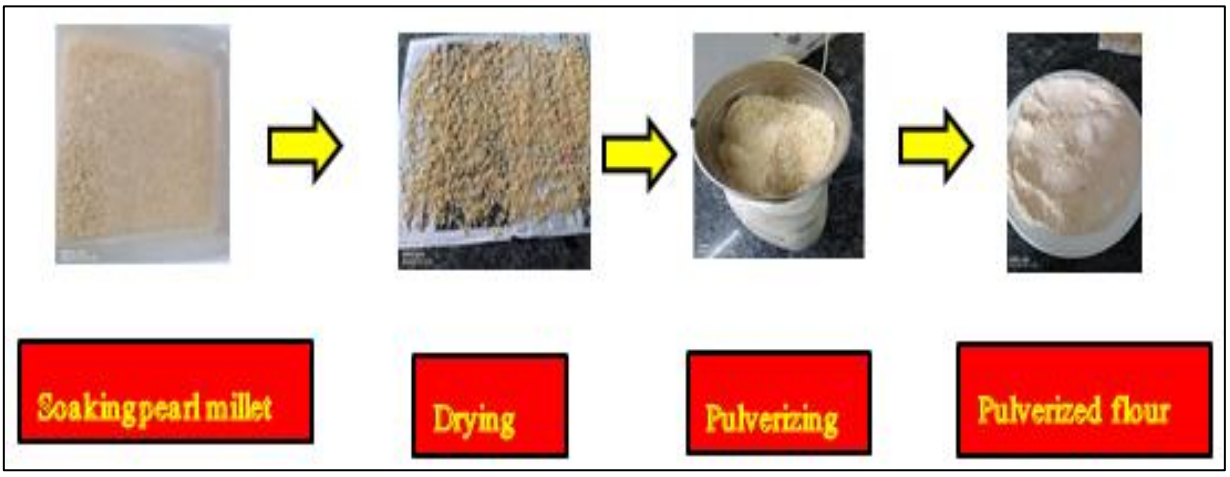

Fig 4. Preparation of Proso millet flour

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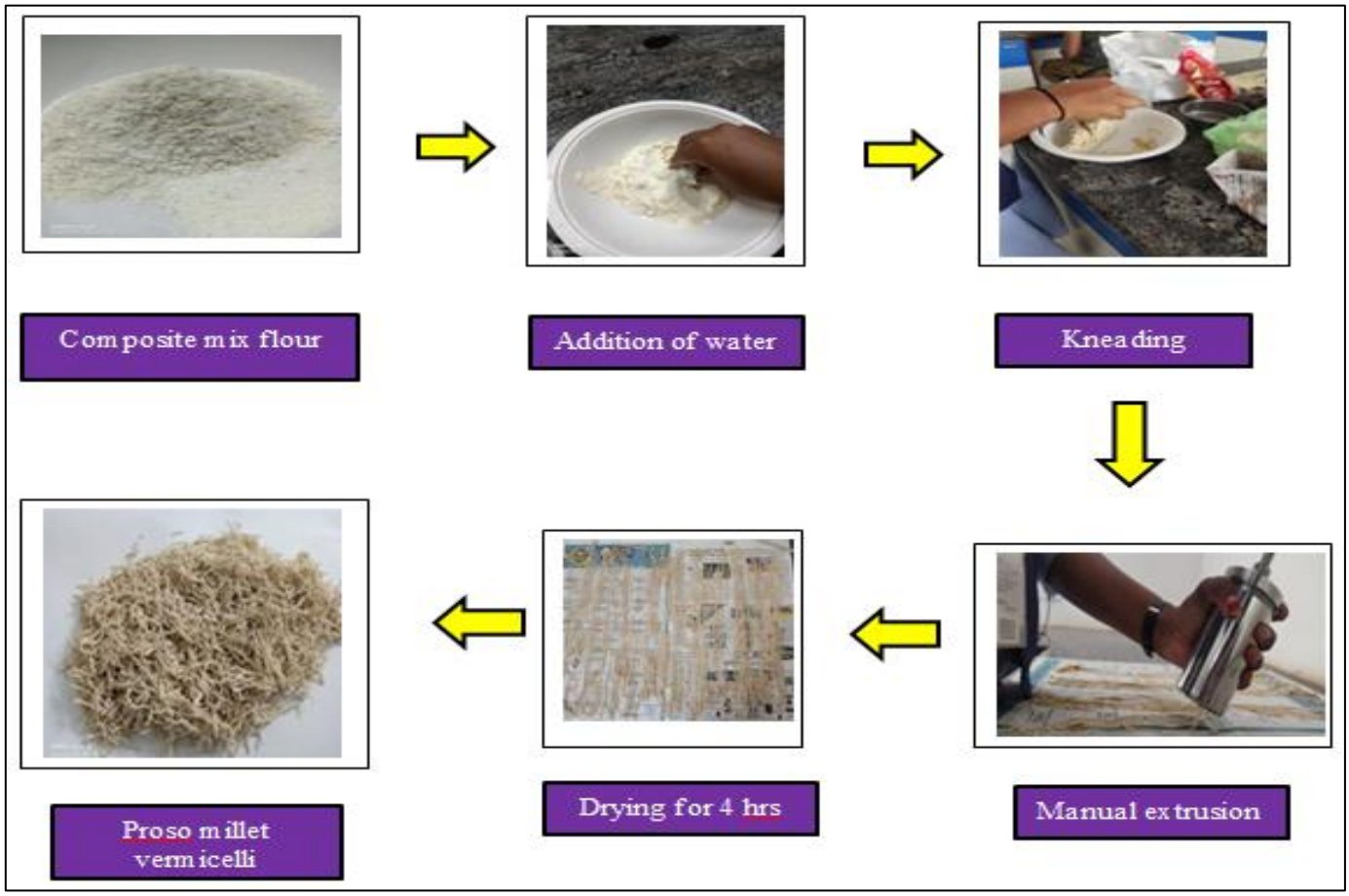

Fig 5. Preparation of Vermicelli

III. RESULT AND DISCUSSION

Various properties of noodles such as physical, nutritional, and organoleptic properties were impacted by substituting semolina in vermicelli formulation with various functional components such as proso millet, black gram, and fenugreek seed powder, as per this study's findings. The study found that T_3 got highest organoleptic scores making it an successful formulation involved a (50 per cent blend of proso millet, 25 percent black gram, and 5 per cent fenugreek seed flour with 20 per cent semolina. Li et al. (2008) reported that Ekanayakam (*Salacia reticulata*) root and stem was effective medicinal herb with functional properties to treat diabetes and obesity. According to Li et al. (2008), the root and stem of ekanayakam (Salacia reticulata) are having medicinal properties that can be used to treat obesity and diabetes. Radha and Amrithaveni (2009) conducted research on *Salacia reticulata*. They reported that taking 2 grams of *Salacia reticulata* powder daily for three months aids in the management of diabetes and maintains blood sugar level.

Lande et al. (2017) discussed that there was reduction in sensory characteristics by increasing the quantity of malted finger millet flour upto 50 percent. According to Kulkarni et al. (2012), noodles prepared with a combination of 30 per cent finger millet flour and 70 percent wheat flour has increased level of nutrients along with good sensory scores.

IV. CONCLUSION

This study indicated the different nutritional and organoleptic properties of the vermicelli that were altered when semolina was replaced with other functional ingredients, such as proso millet, black gram, and fenugreek seed powder, in the formulation. Vermicelli formulated with combination of 50 percent proso millet, 5 per cent fenugreek and 25 per cent black gram powder got highest sensory scores. The study concludes that proso millet can be healthier option for all age groups and it can be successfully incorporated in vermicelli that can be alternative option for people concerned with obesity, corona heart disease and diabetes.

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