Multigrain pasta comes with the goodness of corn and wheat flour as the main ingredient with the small ratio of oat flour, soybean flour and millet flour. Pasta is famous for being the oldest versatile dish and also nutritious. Multigrain pasta products commonly used worldwide since they are simpler to produce and easy to serve. Multigrain pasta formulation developed could be used to supplement growing children and adults with nutritional requirements. A proper formula of multigrain noodles obtained is 45% corn flour, 40% wheat flour, 4% oat flour, 11% millet flour. Compared with wheat noodles, multigrain noodles have higher fat content, dietary fibre and total starch resistant, but contain less protein compared with wheat noodles. They are consumed as short cereal or snack along with tastemaker.

**RAW MATERIALS:**

Wheat flour (13.10% moisture content, 11.65% protein content on dry matter basis), Corn flour (13.23% moisture content, 3.6% Protein content), Oat flour (11.72% moisture content, 14.56% protein content), Soy bean (7.9% moisture content, 32.03% protein content), Millet (10.40% Moisture content, 9.28% protein content)

**MIXTURE DESIGN:**

Simplex centroid design used to pick the best multigrain formula—essential components determined by pre-experiment 50% water, 45% corn flour, 40% wheat flour. Besides, it is best to keep oat flour addition between 4% and 15%.

**PLANT AND MACHINERY:**

Planetary mixer, extruder, tray drier, grinder, sealing machine, weighing balance, etc.
PREPARATION OF NOODLES:
- 200g of multigrain flour mixed with distilled water in dough mixer for 5mins
- The pasting property of multigrain flour determined by rapid viscosity analyser
- After mixing the obtained doughs allowed to rest in a plastic bag at room temperature for 20mins
- After rest steam for 20mins in steamer
- The dough extruded by noodle extruder then the noodle was cut off at the end steamed for 20mins

COOKING PROPERTIES:

Optimum cooking time:
Noodle sample cooked in boiling water with 2% salt (20strips/800mL), the optimum cooking time defined as the white core in noodles disappeared when compressed between two glass plates.

Water absorption:
Water absorption determined by weighing the noodle before and after cooking.
Noodle sample cooked at optimum cooking time and presented randomly in different plates. The sensory evaluation performed according to sensory evaluation standards.

**NUTRITIONAL COMPONENT ANALYSIS:**

Noodle sample were cooked at optimum cooking time, then they were freeze dried and milled for test. Protein concentration was analysed according to AACC method, testing fat content using Soxhlet extractor method, Dietary fibre and total starch were hydrolysed by GB/T method and Dinitro salicylic acid method. DNS to calculate resistant starch.
ABOUT FOOD RESEARCH LAB

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