SENSORY EVALUATION OF MULTIGRAIN PORRIDGE MIX

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Abstract: The present study was carried out for the development of multigrain porridge mix. The process of development of multigrain porridge mix was successfully optimized by using SPSS. The optimization was based on their sensory characteristics which were done by descriptive test. The result was statistically significant (P<0.05). Porridge with different combination of grains enhances the nutritional output of the dish. Multigrain i.e. rice, pearl millet and sorghum idea could lead to a perfect healthy dish, as the symbiotic effect is better than alone.

Keywords: Porridge, cereals, rice, sorghum, pearl millet.

Introduction: Porridge is a dish made by boiling ground, crushed, or chopped cereal in water, milk, or both, with optional flavorings, usually served hot in a bowl or dish. In South India it is also made with curd as a traditional fermented porridge. It may be sweetened with sugar, or served as a savory dish. It is often consumed as breakfast food. Porridge would be an economical source of nutrition. It is very health promising food but has fewer shelf life and lack of commercial production. Thus these hurdles resist the porridge to a limited extinct of application.

Cereals are a rich sources of minerals (phosphorus, magnesium, manganese, zinc, copper, iron and selenium), essential vitamins (thiamin, vitamin B_6, niacin, riboflavin, folate, vitamin A and vitamin E), protein, carbohydrates, dietary fibres and certain compounds such as phenolics which provides several health benefits such as proper nutrition, increased vigour against diseases and some immunomodulatary effects. Specific commodity has its own specific application. However the combination of different commodity provides multiple applications.

Different convenience foods have been developed and reported in several studies with enhanced shelf life, such as instant *kheer* mix (Jha *et al.* 2002), *kheer* ready-mix (Kadam *et al.* 2011), instant multigrain porridge (Mandge *et al.* 2011), ready to reconstitute pearl millet *kheer* (Bunkar *et al.* 2012), ready to mix *Kashmiri fireen* (Rather *et al.* 2012) and instant wheat *dalia* (Khan *et al.* 2012).

Materials and methods: The present work was carried out in Centre of Food Science and Technology, BHU, Varansi. Cereals i.e. Rice, Pearl millet and Sorghum were purchased from the local market of Varanasi. Skim milk powder and powdered sugar were also purchased from the local market of Varanasi.

Preparation of ready to cook multigrain porridge mix Ready to cook multigrain porridge mix prepared by using good quality rice, pearl millet and sorghum. The grains were washed for 2-3 times in clean running water for the removal of impurities and other foreign materials. The grains were broken into 0.8 to 2mm size using grinder. Broken grains were washed thoroughly with water to remove bran and other grainy materials. Thereafter, the grains were soaked in 3 parts of water to grain ratio for 2-3 hr followed by steaming at 115°C, 15 psi for 15 min. The steamed grains were spreaded into thin layer and allowed to dry inside tray dryer up to a moisture content of 5 to 6%. The dried cooked grains were again broken by wooden pestle and mortar.

Dehydrated grains were roasted in hydrogenated fat for 5 min at 120°C. The roasted grain was cooled at room temperature. Thereafter, roasted grains were blended with skim milk powder and powdered sugar.

Sensory evaluation of multigrain porridge mix Descriptive sensory card was used to measure the sensory quality like color and appearance (score 10), body and texture (score 40), flavor and sweetness (score 40) and overall acceptability (10). This evaluation was performed by a panel of 10 semi-trained judges of CFST, BHU, Varanasi.

Results and discussions: The present study was conducted to evaluate the sensory parameters of ready to cook multigrain porridge mix.

Sensory evaluation of multigrain porridge mix Results from the Table1, showed that sensory score for color and appearance of A2 formulation was the highest (8.2 ± 0.7) and was found to be statistically significant (P< 0.05). The sensory score for body and texture was the highest for formulation A2 (36.4 ± 1.2) and significantly superior over other formulations (P< 0.05). The sensory score for flavor and sweetness was the highest for formulation A2 (35.8 ± 1.8) and was also found statistically significant (P< 0.05). It can also be seen from the results that the score for overall acceptability was the highest in case of formulation A2 (8.4 ± 0.6) and statistically significant (P< 0.05) from other formulations. Therefore, formulation A2 was taken as optimised formulation on the basis of sensory evaluation.

Table 1: Sensory evaluation of multigrain porridge mix

Formulation	Colour and appearance	Body and texture	Flavour and sweetness	Overall acceptability
A1	7.4 ± 0.5^{cb}	33.7 ± 2.2^{cb}	32.1 ± 2.3^{b}	7.8 ± 0.6^{ab}
A2	8.2 ± 0.7^{a}	36.4 ± 1.2^{a}	35.8 ± 1.8^{a}	8.4 ± 0.6^{a}
A3	7.6 ± 0.4^{a}	33.6 ± 1.9^{db}	30.8 ± 1.9^{db}	7.6 ± 0.6^{ba}
A4	7.3 ± 0.6^{ba}	33.8 ± 1.5^{b}	34.7 ± 1.3^{a}	7.9 ± 0.7^{ab}
A5	6.0 ± 0.8^{fc}	30.7 ± 1.8^{fe}	30.7 ± 2.5^{fb}	6.9 ± 0.7^{db}
A6	6.6 ± 0.6^{dc}	32.6 ± 1.5^{eb}	30.8 ± 2.5^{eb}	7.0 ± 0.7^{cb}
A7	6.3 ± 0.9^{cd}	30.3 ± 2.4^{gf}	31.7 ± 2.1^{cb}	5.9 ± 0.9^{e}

Data is represented as Mean ± Standard deviation (n=9)
Values represented in superscripts is differ significantly at $P< 0.05$

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