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Sensory profiling of Nutri enriched health drink

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Abstract
Health drink prepared using malted pregelatinized pearl millet, dried Sapota powder, milk powder with jaggery or sugar sensory evaluation was carried with 7 trained and 4 semi trained panellists. from the results obtained it was found that the sensory parameters of health drink with jaggery consisting of malted pregelatinized pearl millet and dried sapota powder with equal proportions was most accepted. The use of jaggery instead of sugar increased the nutritional content of our health mix as jaggery is rich in minerals and also it is the traditional ingredient in Indian cuisine. The more pearl millet flour it reduced the flavour intensity of sapota.

Keywords: Malted pregelatinized pearl millet, health drink mix, traditional ingredient in Indian cuisine

Introduction
Pearl millet is the sixth largest cultivated crop in the world. it is an annual plant which is grown widely in Africa and India (Rachie,1975) [12]. The fruit is cylindrical and pearl in colour. The cultivation of pearl millet requires very less amount of water and the plant is well adapted to sandy or light looms and moist but well drained soils. Pearl millet (Pennisetum glaucum) commonly called as bajra is the staple food for the people living in the semi-arid regions of Africa and Asia. India is the largest producer of pearl millet i.e., about nine metric tonnes is produced every year. In India Rajasthan states stands first followed by Maharashtra and Gujarat. (Alka, 1997) [3].

Most of the pearl millet is grown in India during kharif season i.e., from June-September and in some places in Gujarat and Maharashtra it is also grown during summer, from February-may. In addition to grain the wastage produced after harvesting is used as fodder, fuel for cooking and also as raw material in making building materials like bricks (ICRISAT) [4].

It provides major proportion of nutrients like calories and proteins to the diet. it is also rich in micronutrients like calcium and iron (Shegal,2003) [13]. Pearl millet is almost similar to wheat in protein content (Tanya, 2013) [18] and superior to that of wheat in iron and calcium (Gopalan 1990) [8]. But because of its anti-nutritional factors and poor keeping qualities it is not much used for consumption however some pre-treatment steps like malting, pregelatinization used before processing of grains into flour reduce the anti-nutritional factors content and increases the bio availability of nutrients. (Inyang, 2008) [10], (Sharma, 1997) [15], (Suma 2011) [16].

Pearl millet before processing into flour is subjected to some pre-treatment processes like malting, pregelatinization and roasting. Pearl millet grains are allowed to germinate by tying the grains in a muslin cloth for 12 hours and periodically the bag is wetted by pouring some water on it. Malting increases the nutritional quality by breaking down complex substances down to simple substances and ease the digestion process. Malting also helps in increasing the bioavailability of micronutrients like iron and calcium (Florence) [7]. Iron helps in increasing blood levels and preventing anaemic disorders where calcium helps in increasing bone strength and strong teeth formation. Pregelatinization helps in reducing the cooking time and reduces the nutrient loss while cooking i.e., reducing the water solubility index of the flour. (Alebiowu, 1995) [2]. Roasting helps in developing characteristic flavour to the flour, ease removal of the sprouts from grain and reduces the moisture content from the grains.

Fruits add a variety to the diet. They are rich sources of minerals and vitamins which helps in boosting the immune system of the body. Sapota is one of the major tropical fruit produced in India (Sri vastava, 1994) [14]. Because of high water content it is having a very low shelf life. (Banik 1990) [5]. Sapota contains high amount of vitamin-c and also a good source of nutraceuticals which contains many health benefits to human health, besides its nutritional composition because of its stickiness in the mouth while eating most of the children avoid to eat it.

In order to increase its consumption Sapota is further processed and made into powder (Ganjyal, 2003) [9] and then used as a value edition for making various products.

Materials and Methods

The following experiment was done in oil technology and research institute, JNTU-Anantapur. Pearl millet was procured from local market in Anantapur, the grains were cleaned and soaked for 12 hours, allowed to germinate for 14 hours. They were further pregelatinized for 18 minutes until the grains did not lose their original structure. The grains were further allowed to dry until the moisture content of the grains reached to 11.5%. Now the grains are roasted for 3 minutes in an open tawa until the raw flavour form the grains is lost. They were further pulverised by using 2HP pulveriser and then sieved by using 50mm mesh and fine flour was collected and stored in an air tight LDPE container.

Formulation of RTR health drink mix

The health drink mix was prepared by using pregelatinized bajra flour, dried sapota powder, milk powder, and jaggery. six samples were made in all the samples milk powder and jaggery were taken in same proportion and from sample 1-5 pearl millet flour and dried sapota powder were taken in the ratio of 50:50,60:40,70:30,80:20,100:0 where 100:0 is taken as control.

Sensory evaluation of health drink mix

10gms of health drink mix was dissolved in 30 ml water and mixed thoroughly without any lumps, this mix was then dissolved in 70 ml water and cooked on a medium flame for 3 minutes. The prepared drink was then cooled and taken into bowls and then sensory evaluation was conducted for these samples by 7 trained and 4 semi trained panellist's from OTRI-JNTUA. The sensory properties like colour, taste, flavour, texture and overall acceptability were evaluated, the scores were given on basis of 9 hedonic scale rating. (Ametrine, 1965) [1], (Meilgaard 1991) [11].

Results and Discussion

Amon the prepared samples the sample with code LJC 1 was the most accepted among all the remaining samples in which all the organoleptic properties such as colour, taste, flavour, texture, mouth feel, and over all acceptability has attained good score, followed by the sample LJC 2 and the sample which attained least score was the sample LJC 4.

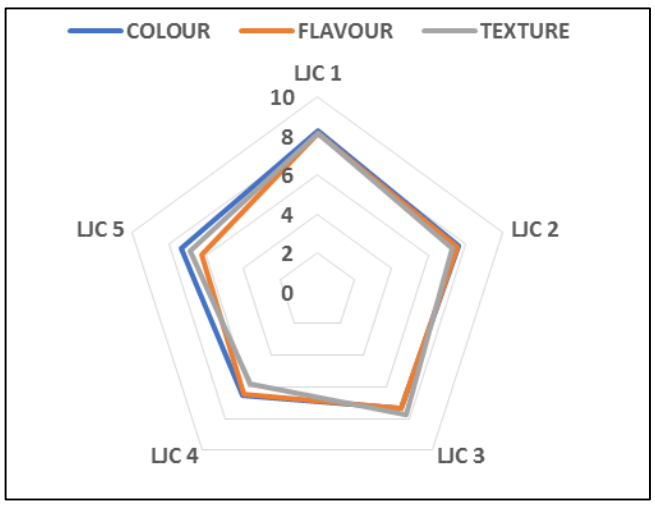

Fig 1: Sensory evaluation of various Nutri mix health drinks

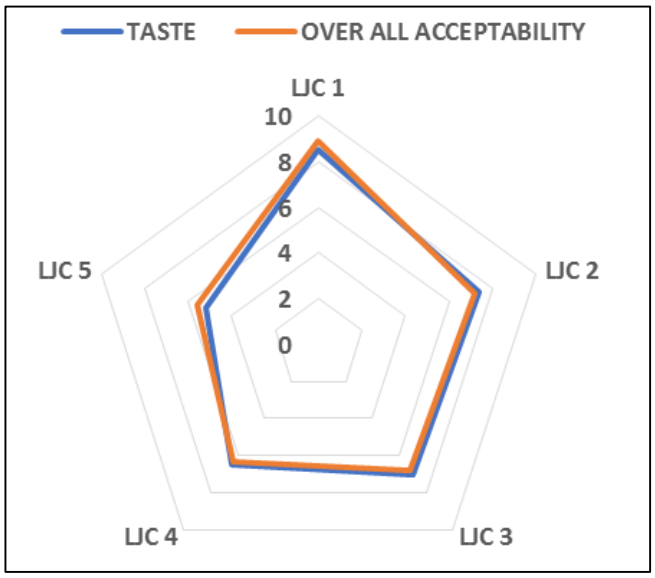

Fig 2: Show the over all acceptability

LJC 1: Pregelatinized pearl millet flour and dried sapota powder were taken in the ratio of 50:50
LJC 2: Pregelatinized pearl millet flour and dried sapota powder were taken in the ratio of 60:40
LJC 3: Pregelatinized pearl millet flour and dried sapota powder were taken in the ratio of 70:30
LJC 4: Pregelatinized pearl millet flour and dried sapota powder were taken in the ratio of 80:20
LJC 5: Pregelatinized pearl millet flour and dried sapota powder were taken in the ratio of 100:0

Conclusion

In comparison with controlled health drink the dried sapota powder which is incorporated at 1:1 ratio with that of pregelatinized pearl millet flour had attained maximum scoring in sensory parameters with an overall acceptability of 8.37±0.09, taste of 8.17±0.07, flavour of 8.27±0.08, texture of 8.67± 0.06 respectively. By the pregelatinization technique it greatly reduced the cooking time and increased the sweeling power of the pearl millet flour [2] and by the use of roasting technique it imparted characteristic flavour to the pearl millet flour.

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