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Effect Of Malted Ragi Powder On The Sensory Attributes Of Carbonated RTS Functional Millet Based Whey Beverage

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ABSTRACT

The present scenario focus interest in nutrition and health awareness, consumers are increasingly seeking high- quality functional products with acceptable sensory attributes. The primary objective of current research was to optimize the process for developing Carbonated Ready-to-serve (RTS) functional millet-based whey beveragemalted ragi (5%,7%,9) on the sensory and physico-chemical aspects of Carbonated RTS functional millet-based whey beverage. Based on the analytical result, the functional beverage contained 5% Malted Finger Millet and was subjected for shelf-life tests.

Sensory evaluation, as well as titratable acidity and pH analysis, was conducted for the samples stored at refrigeration temperature (7±1ºC) and for those stored at roomtemperature (30±1ºC) in glass bottle as the packaging material. The carbonated and non-carbonated RTS functional millet-based whey beverage and the control were found to be acceptable up to 2 days of storage at room temperature (30±1ºC) and for 8 days stored at refrigeration temperature (7±1ºC), respectively.

The developed carbonated RTS functional millet based whey beverage is an innovativeand nutritious product with enormous health benefits as it contains nutraceutical ingredient i.e. finger millet (power house of nutrients). The developed functional millet based whey beverage can be given to all age groups and can be easily commercialized.

INTRODUCTION

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In India, ragi is the colloquial name for finger millet (*Eleusine coracana*). It is sometimes recognized as poor man's food. Ragi is a cereal crop that has been traditionally cultivated and consumed in many parts of the world, especially in Africaand Asia. It ranks sixth in production after rice, heat, maize, sorghum and pearl milletin India. Malted beverage mix acts as a nutritious, concentrating majorly on function and

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not on flavour. In India, the malt-based products are generally advertised as "health drinks". Development of value-added products that contain Ragi as one of their major components can be beneficial for food and nutrition security of Indians. Ragi may contribute to solving the issue of micronutrient deficiency. It can therefore be a part of various nutritional programs to enhance the nutritional density of foods. The malted and fermented finger millet flour are extensively used in preparation of weaning food, instant mixes, beverages and pharmaceutical products.

MATERIALS AND METHODS

The carbonated RTS Functional Millet based Whey beverage is developed with natural ingredients like one of which is Malted ragi powder with an intention to increase the nutritive and therapeutic benefits. The materials used and the methods employed in this investigation is presented. The following studies were carried out at the Student Experiments Dairy Plant, Dairy Technology Department, Dairy Science College, Bengaluru, Karnataka veterinary, Animal and FisheriesSciences University, Bidar.
Good quality malted ragi powder was purchased from the market, which was used in the preparation.

Method

Preparation of RTS Functional Millet based Whey Beverage

The milk was heated to 90°C and cooled to 70°C. Citric acid is weighed and added asper the quantity of milk. It is left unstirred for 15 minutes, and then strained using a muslin cloth. The fresh whey is collected and pasteurized. Further it was cooled to 42°C and culturedwith a probiotic culture *Lactobacillus acidophilus* was added at 1% to1liter of fresh whey followed by incubation for 3 hours at 40°C. Then after cooling it is used for product preparation. Functional ingredients are added to the fermented whey. Malted Ragi powder purchased from the market was added. The prepared beverage was evaluated by 9-point hedonic scale through sensory evaluation.

Optimization of the level of Malted ragi powder in development of Ready- To-Serve Whey Beverage

The whey beverage prepared from the best optimized level of malted ragi powder (5,7, 9%). The product was given for sensory evaluation to select the optimum level of malted ragi powder to prepare RTS whey beverage.

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RESULTS

Level of Malted Millet Ragi (%)	Colour andappearance	Body andtexture	Flavour	Overall acceptability
Control	7.33[b]	7.02[b]	7.23[b]	7.22[b]
5%	8.00[a]	8.00[a]	7.77[a]	8.16[a]
7%	7.03[b]	7.01[b]	7.01[b]	7.08[b]
9%	6.71[c]	6.50[c]	6.20[c]	6.23[c]
CD	**0.386**	**0.386**	**0.386**	**0.386**

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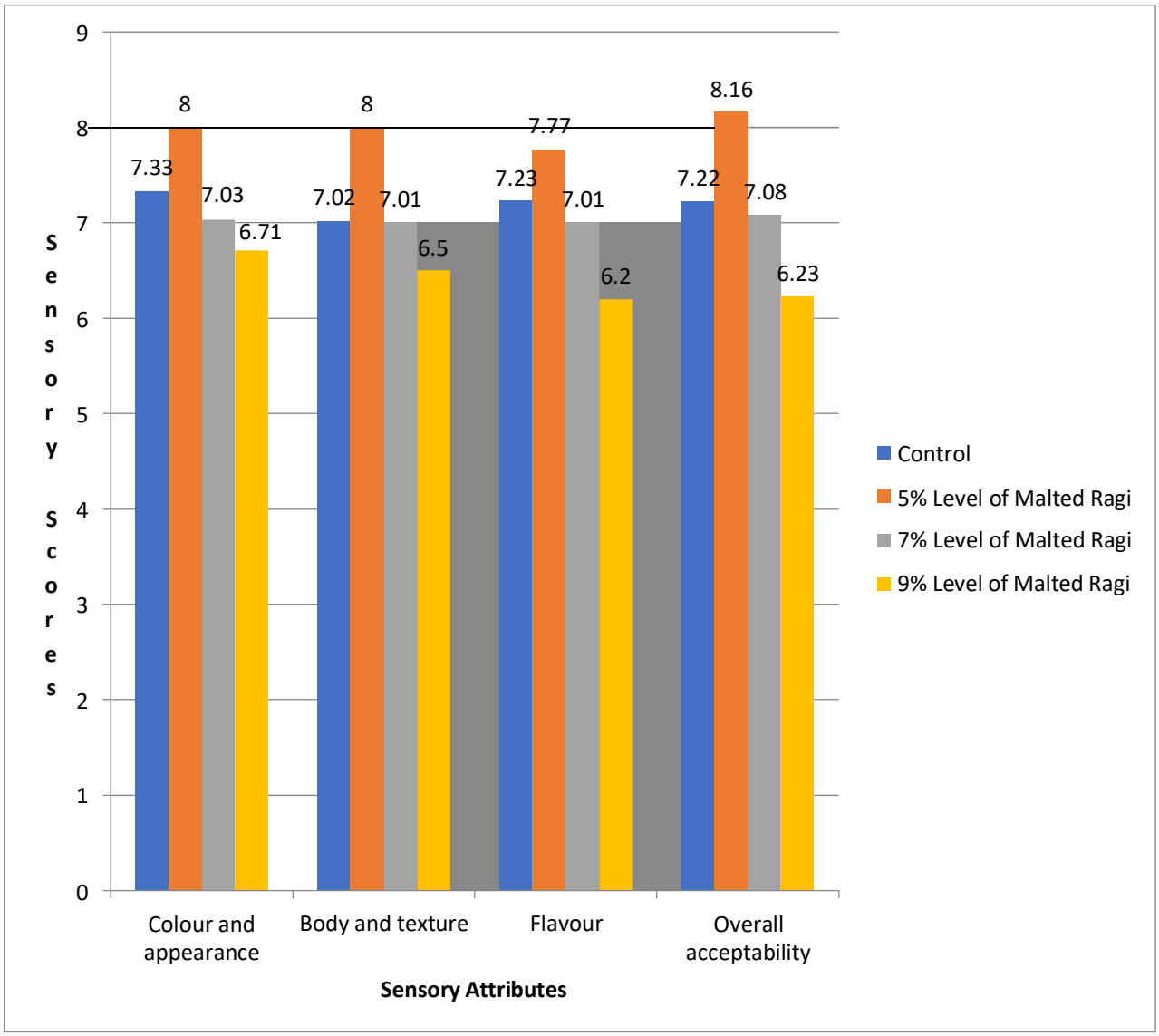
Effect of Malted Millet (ragi) powder on sensory attributes of RTS

Functional Millet based Whey Beverage



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DISSCUSSION

The carbonated RTS functional millet based whey beverage was developed utilizing functional ingredients such as Malted Ragi powder and other ingredients.

Malted Ragi powder was incorporated (5%, 7% and 9%) and was subjected to sensoryevaluation. Among these, the carbonated RTS millet based whey beverage with 5% Malted Ragi powder received the highest score for, colour and appearance body and texture, flavour, overall acceptability, scoring were 8.00, 8.00, 7.77 and 8.16 out of 9.00 respectively for developed product. Whereas scores for control sample were 7.33,7.02, 7.23 and 7.22 out of 9.00. The optimized level of Malted Ragi powder was foundto be 5%. The other two formulations (7% and 9%) showed too settling of ragi at the bottom of bottle. Also, gave a rough feel while drinking. Supplemental beverages containing 5% of malted ragi can be developed successfully with high nutritional value without having negative effect on sensory attributes, which can improve calcium levels and hydration in sports people (Ashraf *et al.*,2023).

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