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Influence of curcumin on the sensory characteristics of ready-to-eat functional Paneer burfi

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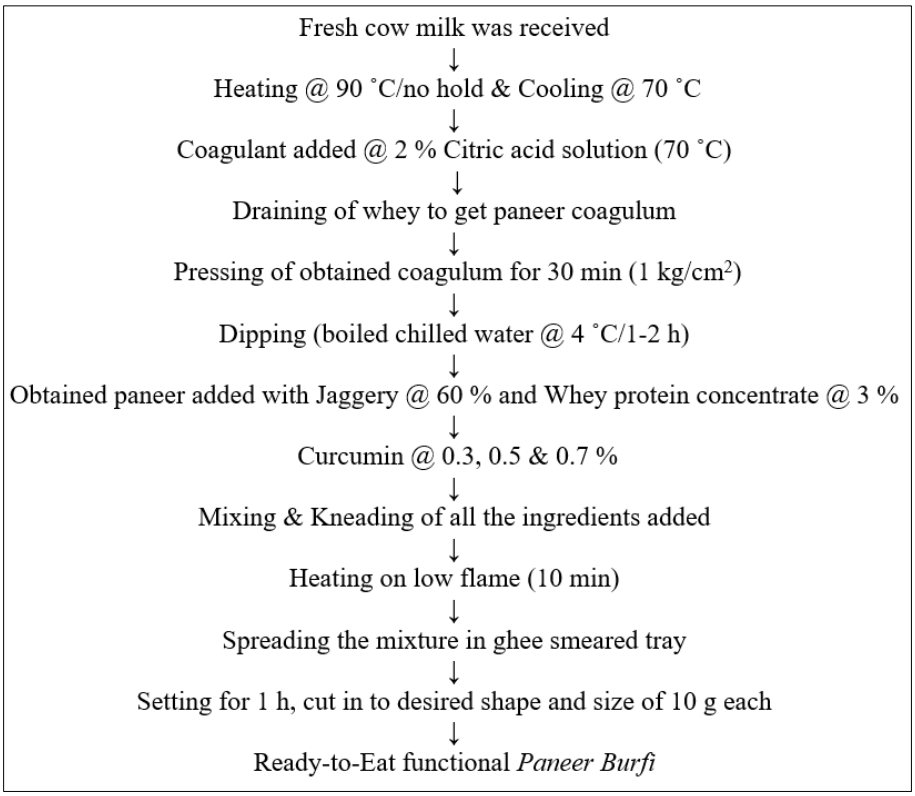
Abstract
Natural food colour ants are gaining importance because of consumer awareness regarding their health and well-being. Turmeric was obtained from the roots of the *Curcuma longa* herb which contains curcumin phytochemical, a functional ingredient responsible for yellow colour of turmeric. It also exhibits therapeutic benefits like antibacterial, antioxidant and immunomodulatory effect. Curcumin can be used as food colouring agent in dairy products, beverages, energy bars etc. Attempt has been made to optimise the required percent of curcumin as functional ingredient and natural colouring agent in the development of RTE functional Paneer burfi by blending with 0.3, 0.5 and 0.7 percent of curcumin respectively. RTE functional Paneer burfi optimised with 0.5 percent curcumin resulted in good sensory attributes with score of 8.50 for colour and appearance, 8.00 for body and texture, 8.37 for flavour and 8.53 for overall acceptability.

Keywords: Ready-to-eat, functional, Paneer burfi, curcumin

1. Introduction
Dairy products have established health benefits among which *paneer*, a heat and acid coagulated product utilised for various snacks and culinary dishes preparation. *Paneer* is rich in protein and fat with significant amount of minerals and vitamins [1]. Colour of the product plays a vital role in appearance of the product along with enhancing consumer acceptability. It is an ancient practice to use the natural colours in food preparation. Natural colours also add to the health benefits of the product that it contains. Turmeric is an herbaceous perennial plant containing polyphenolic phytochemical curcumin which renders yellow colour to the turmeric. Curcumin can be utilised as natural colouring agent and bioactive compound as it exhibits antioxidant, antibacterial and immunomodulatory effect. Incorporation of curcumin in development of RTE functional Paneer burfi enhances the sensory appeal and functional value of the product [2].

2. Materials and Methods
The current research study was undergone by receiving fresh cow milk from SEDP, Dairy Science College, Bengaluru. Food grade citric acid was utilised for *paneer* preparation. Ready to eat functional Paneer burfi was prepared on the basis of procedure given by Gharatkar *et al*., (2021) [3] with minor modifications[3]. Good quality curcumin was procured from Trinath, Hyderabad.



Assessment done using 9-point hedonic scale for sensory analysis and it was analysed by panel of judges. Statistical analysis of the obtained results was done using ANOVA [R-software (4.1.2)] mentioned in Table 1.

3. Results and Discussion

Table 1 and Fig. 1 represents the sensory scores with respect to the effect of curcumin (0.3, 0.5 and 0.7 percent) on the sensory characteristics of RTE functional Paneer burfi.

3.1 Colour and appearance

The mean colour and appearance sensory score of control sample was 8.00 as against 8.00, 8.50 and 7.00 for experimental samples with 0.3, 0.5 and 0.7 percent curcumin respectively. With respect to colour and appearance scores, significant difference (p<0.05) observed between control and RTE functional Paneer burfi samples. The colour score increased to 8.50 with increase in curcumin concentration up to 0.5 percent. Further at 0.7 percent curcumin, the sample obtained lowest score of 7.00. This could be due to intense yellow colour contributed by curcumin at higher concentrations. The results were in line with Manoharan *et al*., (2012) who revealed that 0.5 percent addition of curcumin in butterscotch icecream obtained highest colour score of 4.97 and further addition resulted in intense yellow colour of the product [2]. Maurya *et al*., (2020) mentioned similar results in curcumin fortified *lassi*[4].

3.2 Body and texture

The control sample obtained 7.50 score for body and texture as against samples added with different levels of curcumin which secured score of 8.00 for body and texture. As per statistical analysis, different levels of curcumin had non-significant effect with respect to body and texture of experimental samples but significant difference noticed between both control and experimental samples. Curcumin treated RTE functional Paneer burfi samples secured high body and texture score of 8.00 as against control (7.50). Non-significant difference (p>0.05) observed between scores of treated samples as curcumin did not affect the body and texture of RTE functional Paneer burfi.

3.3 Flavour

The average sensory score of control sample for flavour was 7.55 as against 8.02, 8.37 and 7.13 for experimental samples added with 0.3, 0.5 and 0.7 percent of curcumin respectively. Statistical analysis confirmed that flavour score of control and curcumin treated samples are significantly differed (p<0.05). Flavour scores increased to 8.37 for sample with 0.5% curcumin addition. Further at 0.7% curcumin addition, samples secured low score of 7.13. This may be attributed to bitter aftertaste rendered by curcumin at high concentration. The obtained results were inline with Manoharan *et al*., (2012) reported that flavour scores increased in butterscotch flavoured icecream added with 0.5% curcumin and decreased further in sample with 0.7 percent curcumin [2]. Similarly, Dattatraya, (2019) noticed decreased flavour score due to bitter aftertaste rendered upon addition of 7 and 10 percent curcumin in *burfi* [5].

3.4 Overall acceptability

The control sample was awarded mean overall acceptability score of 7.59 as against 8.00, 8.53 and 7.00 for treated samples with 0.3, 0.5 and 0.7 percent curcumin respectively. Significant difference (P<0.05) observed with respect to the overall acceptability scores of all the samples. High overall acceptability score obtained for RTE functional Paneer burfi with 0.5% curcumin (8.66) whereas at 0.7% addition, RTE functional Paneer burfi obtained least overall acceptability score of 7.13. This could be due to the intense colour, bitter aftertaste imparted by curcumin at higher concentration. Similar findings were reported by Manoharan *et al*., (2012)

who developed butterscotch flavoured icecream enriched with 0.5 percent curcumin secured maximum overall acceptability score of 88.91 out of 100. Further curcumin addition resulted in lower overall acceptability scores [2].

Table 1: Effect of curcumin on the sensory characteristics of ready to eat functional Paneer burfi

Curcumin (%)	Colour and appearance	Body and texture	Flavour	Overall acceptability
Control	8.00[a]	7.50[a]	7.55[a]	7.59[a]
0.3	8.00[a]	8.00[b]	8.02[b]	8.00[b]
0.5	8.50[b]	8.00[b]	8.37[c]	8.53[c]
0.7	7.00[c]	8.00[b]	7.13[d]	7.00[d]
CD(*P*=.05)	0.18	0.16	0.09	0.17

Note:
All the values are average of three trials
Similar superscripts indicate non - significance at the corresponding critical difference
Sensory analysis – 9-point hedonic scale

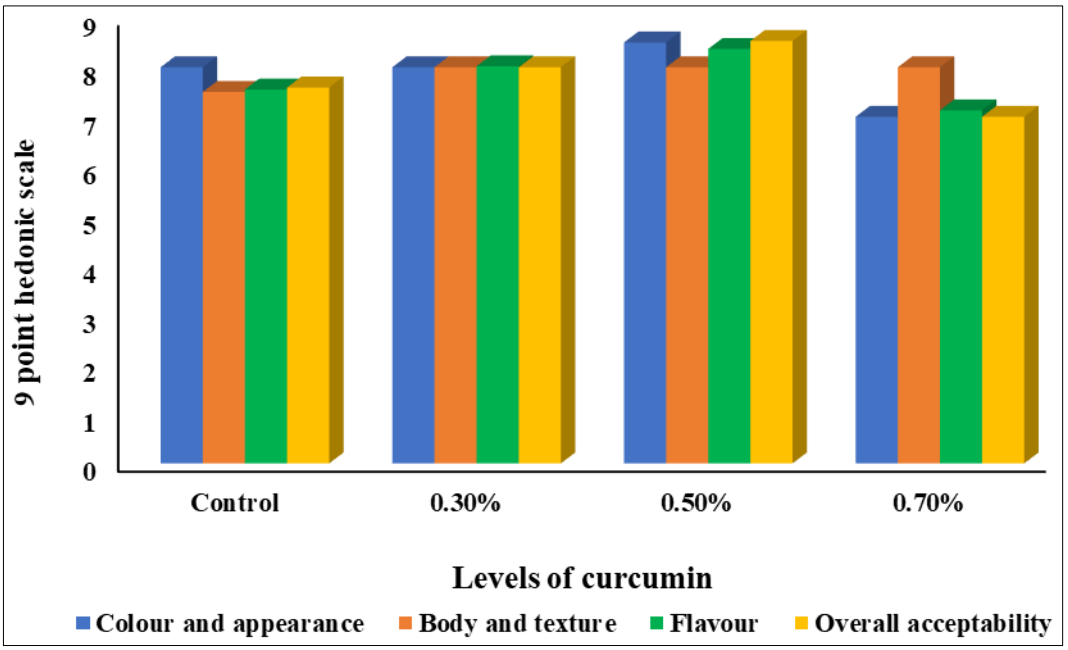


Fig 1: Effect of curcumin on the sensory characteristics of RTE functional Paneer burfi

4. Conclusion

The results of the sensory analysis in the present study revealed that incorporation of curcumin as a colouring agent and functional ingredient altered the organoleptic properties of the developed product. Among the different levels of curcumin, 0.5 percent level attained maximum sensory scores. Hence, it was concluded that 0.5 percent curcumin founds best in the development of RTE functional Paneer burfi which possesses beneficial effect of curcumin enhancing the functionality of the product.

5. Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

6. References

1. Gupta DY. Effect of storage on chemical attributes of paneer spread. The Journal of Rural and Agricultural Research. 2014;14(2):32-34.
2. Manoharan, Ramasamy, Dhanalakshmi, Gnanalakshmi, Thyagarajan. Studies on Sensory Evaluation of Curcumin Powder as Natural Colour for Butterscotch Flavour Icecream. Indian Journal of Drugs and Diseases. 2012;1(1):43-46.
3. Gharatkar, Waikar, Ramod, Prasade, Dandekar. Microbial Studies and Cost of Production of Chhana Burfi Prepared by Using Chocolate Flavoured Whey Protein Powder. The Pharma Innovation Journal. 2021;10(1):1- 4.
4. Maurya N, Khamrui K, Prasad W. Preparation and Stability Evaluation of Curcumin Fortified Lassi, a Fermented Dairy Beverage. International Journal of Fermented Foods. 2020;9(1):19-30.
5. Dattatraya GS. Enhancement of functionality and shelf life of burfi using encapsulated curcumin. M.Tech, Thesis submitted to the ICAR-National Dairy Research Institute, Karnal; c2019.