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Standardization of base material for turmeric product

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Abstract

The current study, entitled "Standardization of base material for turmeric product" was carried out at Horticultural Research Station, Lam, Guntur, Dr. Y.S.R. Horticultural University, Andhra Pradesh. The turmeric product was prepared with ingredients, viz., ginger, black pepper, coriander seeds, curry leaves, dried red Chillies, tamarind, cumin, salt, water and oil (A-mix), tomato (B), onion (C) and turmeric (D). The standardisation of protocol of the product with various treatments: T1 (A-mix + D), T2 (A-mix + B + D), T3 (A-mix + C + D), T4 (A-mix + B + C) and T5 (A-mix + B + C + D) were conducted. The sensory evaluation with ten sensory panels, resulted in the finding that treatment T1 (A-mix + D) was preferred compared to other treatments. This turmeric product can help to boost immunity and is an effective remedy for cold and sore throat.

Keywords: Turmeric product, sensory evaluation, remedy, cold, sore throat

Introduction

India is the world's top spice grower, user and exporter. Kerala is renowned as India's spice garden because it offers a wide range of spices that are well-known around the world for their flavour. Following the COVID outbreak, customers are more focused on immunity-boosting Spices. Turmeric is one of the finest immunity-boosting spices and its usage has skyrocketed worldwide since COVID-19. It has been utilized as a component of medicine in Ayurveda, Unani and Siddha for almost 4000 years, dating back to the Vedic period in India (Rathaur *et al.*, 2012) [6].

Turmeric is an herbaceous perennial plant that is also known as Indian saffron. Turmeric rhizome is the most profitable portion of the plant. In many places, it is utilized as a preservative and natural colourant. Turmeric powder is adulterated by talcum powder. It is employed in Hindu religious ceremonies. It has antiseptic, antibacterial, anti-cancer and anti-inflammatory properties. Turmeric is also a powerful antioxidant (Vajragupta *et al.*, 2003) [9]. In rats and rabbits, it had a healing effect on both aseptic and septic wounds (Sidhu *et al.*, 1999) [8]. It is a rich source of potassium (2374 mg/100g). Curcumin, the yellow component in turmeric, functions as a natural antioxidant. Piperine increases the bioavailability of curcumin. Turmeric powder is used in preparation of turmeric milk, supplements, and spice premixes. Essential oil and oleoresin are value-added products prepared from turmeric powder.

The inclusion of turmeric in our daily diet is essential due to its numerous therapeutic benefits. To battle potential pandemics, various turmeric products such as turmeric lozenges, turmeric candy, turmeric pickles *etc.* should be popularized. As a result, there is a need to design a novel turmeric product, which is tasty as well nutritious. In light of this, research on standardizing the base material for turmeric product was initiated. Turmeric product using various ingredients in different formulations were designed, prepared and subjected to sensory evaluation under this study.

Materials and Methods

The current study named "Standardization of base material for turmeric product" was conducted at Horticultural Research Station, Lam, Guntur, Dr. Y.S.R. Horticultural University, Andhra Pradesh.

Procurement of raw material

Raw material such as turmeric was procured from the HRS, Lam, Guntur. Different ingredients like ginger, tomato, onion, cumin seeds, coriander seeds, black pepper seeds, curry leaves, tamarind, dried red Chillies, salt, water and oil used for conducting study were procured from the local market.

Standardization of base material for the preparation of turmeric product

To standardize the base material, the different combinations shown in Table 1 were examined and an acceptable result was chosen for continued use. Table 2 lists the quantities of

various ingredients. Throughout the treatments, the A-Mix components were kept consistent and turmeric product was standardized.

Table 1: Different treatments with various combinations for standardization of base material for turmeric product.

Treatments	Combinations
T1	A-Mix + D
T2	A-Mix + B + D
T3	A-Mix + C + D
T4	A-Mix + B + C
T5	A-Mix + B + C + D

Table 2: Quantity of ingredients.

A-mix		B	C	D
Ingredients	Weight/Volume	163.7 g of tomato	100.8 g of onion	Acceptable quantity of turmeric
Ginger	27.3 g			
Black pepper seeds	0.5 g			
Cumin seeds	2.4 g			
Coriander seeds	2.7 g			
Curry leaves	1.1 g			
Tamarind	19.3 g			
Dry chillies	3.7 g			
Salt	7.7 g			
Water	200 mL			
Oil	20 mL			

Organoleptic evaluation of turmeric product: Colour, flavour, taste, texture, mouth feel and overall acceptability of turmeric product were evaluated organoleptic ally. Ten trained panellists were part in this study and the quality of the turmeric product was rated using 9-point hedonic scale.

Results and Discussion

The sensory evaluation was carried out on turmeric product with respect to colour, flavour, taste, texture, mouth feel and overall acceptability and the same are depicted in Table 3.

Table 3: Organoleptic evaluation of turmeric product with various ingredients.

Treatments	Colour	Flavour	Taste	Texture	Mouth feel	Overall acceptability
T1	8.3	8.6	8.5	8.8	8.7	8.8
T2	8.1	8.5	8.2	8.6	8.6	8.5
T3	7.7	7.4	8	7.3	7.6	7.7
T4	7.9	7.7	7.8	7.5	7.2	7.9
T5	8	8.3	8.1	8.4	8.6	8.2
SE(m)	0.08	0.05	0.07	0.06	0.04	0.05
C.D.@5%	0.23	0.14	0.20	0.17	0.12	0.15

The data presented in above Table 3 showed that turmeric product T1 (A-mix + D) received highest overall acceptability score (8.8) compared to other samples and lowest in T3 (A-Mix + C + D) with a score of 7.7. Further, the highest sensory scores for colour (8.3), flavour (8.6), taste (8.5), texture (8.8), and mouth feel (8.7) were also recorded in T1 (Fig. 1)

Many turmeric products like turmeric pickle (Sharma *et al.*, 2021) [7], lozenges (Deepthi *et al.*, 2022) [1], turmeric milk (Giri *et al.*, 2022) [2] etc are getting popularized in the market. These products not only supply nutrients but also boost immunity in humans. Similar results were reported by Chauhan *et al.* (2018) [10] in development of turmeric chutney, Pawar *et al.* (2021) [4] in study of effect of pre-treatments on the quality of candy from turmeric, Pawar *et al.* (2021) [4] in standardization for preparation of turmeric soup and Martina *et al.* (2020) [3] in effect of the incorporation of graded levels of turmeric on different qualities of stirred yogurt.

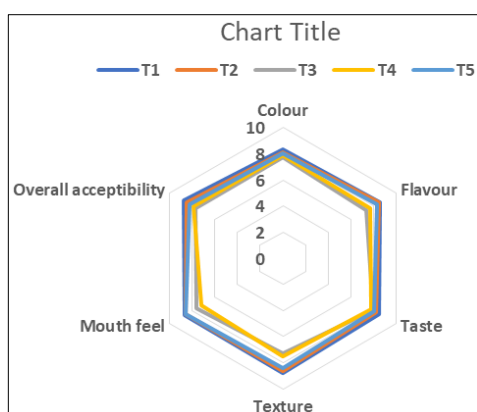


Fig 1: Graphical representation of sensory evaluation

Conclusion

Results revealed that the preparation of turmeric product was observed to be superior in treatment combination T1 (A-Mix + D) in terms of taste and medicinal values. Thus, optimized formulation of turmeric product is the best remedy for cold and sore throat.

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