International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Nutrachoco Kids: Herbal Wellness in a Chocolate Matrix

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ABSTRACT:

Herbal chocolate is a unique and healthy twist on regular chocolate. It combines the rich taste of cocoa with the benefits of medicinal herbs. Th ese herbs, such as tulsi, ashwagandha, mint, or ginger, are known for their healing properties. When added to chocolate, they not only enhance the flavor but also boost health. Herbal chocolate can help improve digestion, reduce stress, strengthen immunity, and provide energy. It offers a natural way to enjoy a treat while also taking care of your body. This chocolate is especially good for people who want to avoid artificial ingredients and prefer a more natural lifestyle. It can be used as a daily snack or even as a supplement to support wellness. Herbal chocolate is becoming more popular among health-conscious consumers who want both taste and nutrition. This product shows how traditional herbal knowledge can be blended with modern food to create something both delicious and beneficial for health.

Key words: Viral infection, chocolate, pediatric, herbal, Tulsi

INTRODUCTION:

Figure 1- Chocolate

Chocolate (see Figure. 1) is one of the most popular foods among children, while medicine is often disliked. This study aims to create a “medicated chocolate,” combining chocolate with a medicinal ingredient to aid in disease prevention. Common ailments in children include coughs and viral infections. Ocimum sanctum, or Tulsi, is a herb known for its medicinal properties, including antitussive (cough-relieving) effects. This project focuses on formulating a chocolate Infused with Tulsi extract to provide antitussive benefits.

The medicated chocolate is evaluated for attributes such as appearance, dimensions, hardness, bloom stability (to test texture and color), drug content, and physical stability. Chocolate is a versatile food, able to pair with many ingredients to create unique tastes and textures. Being an anhydrous medium, it inhibits microbial growth and helps protect water-sensitive active ingredients. Additionally, chocolate contains compounds like saturated fats, polyphenols, sterols, di- and triterpenes, aliphatic alcohols, and methylxanthines. It also has phenylethylamine, often called “the love drug,” which naturally occurs in the brain and is linked to feelings of happiness. In chocolate, phenylethylamine can elevate blood pressure and blood sugar, contributing to a sense of wellbeing.

Humans recognize five basic tastes: sweet, sour, bitter, salty, and savory. Sweetness is especially pleasurable, helping us identify high-calorie foods. In this study, the medicated chocolate is prepared by creating a chocolate base, into which the Tulsi extract is incorporated.

Among the many healthy substances found in chocolate include sterols, polyphenols, saturated fats, aliphatic alcohols, methylxanthines, di- and triterpenes, and polyphenols (Knight, 2000). Cocoa, the main component of chocolate, is particularly rich in polyphenols, especially flavan-3-ols like epicatechins, catechins, and procyanidins (Lamuela-Raventos et al., 2001; Hammerstone et al., 2000; Scalbert et al., 2000; Adamson et al., 1999; Lazarus et al., 1999). Research suggests that diets high in flavonoids, a type of polyphenol, may lower the risk of coronary heart disease, potentially due to their antioxidant effects (Geleijnse et al., 1999; Hertog et al., 1995; Fuhrman et al., 2001). Taste refers to the sensation of flavor that occurs when a substance contacts the mouth. Foods or medications are considered "palatable" when they are pleasant to taste (Oxford Dictionary, 2007). The main cells responsible for taste are modified epithelial cells, which are grouped into taste buds located on the tongue's taste papillae (Llorens et al., 2004). The four main categories of taste are sour, bitter, salty, and sweet Children's taste perceptions differ notably from adults'. Studies indicate that infants and young children have a preference for sweet flavors, which gradually shifts to align more closely with adult taste preferences as they reach adolescence (Mennella et al., 2005; Lawless et al., 1985; Liem et al., 2002). However, children also show a natural aversion to bitterness from an early age, which can make bitter-tasting foods or medicines less appealing. This strong aversion has even led to the inclusion of bitter agents as a safety measure to prevent accidental consumption of potentially toxic substances.

OVERVIEW ON INGREDIENT USED IN HERBAL CHOCOLATE:

1.Tulsi:-

Tulsi is considered to be a ubiquitous plant in India.

Biological name:- Ocimum tenuiflorum

Family:- Lamiaceae

Genus:- ocimum

Species:- o.tenuiflorum

Synonyms:-ocimum sanctum

chemical composition:- Tulsi chemical composition is very complicated. It is eugenol, or 1-hydroxy-2-methoxy-4-allylbenzene. This chemical formula contains many phyto-chemicals referred as compounds.

There are some biologically active compounds like urosolic acid, luteolin and apigenin that can be extracted from the Tulsi leaves.

2. Mint [Pudina]

Scientific Name:- Mentha.

Family:- Lamiaceae (Mint Family).

Genera:- Mentha.

Species:- There are about 25 species and many hundreds of varieties within the Mentha genus.

Other common names:- Pudina, Mint.

Cultivated species:- Japanese Mint/Menthol Mint (M. arvensis), Peppermint (M. piperita), Spearmint (M. spicata), Bergamot mint (M. citrata).

Plant type:- Perennial herbaceous plants.

Distribution:- Widely distributed in temperate areas globally, including Eurasia, North America, southern Africa, and Australia.

Uses:- Used for flavoring in food and beverages, as scents in perfumes, and in herbal medicine.

3.Honey:-

Synonyms:-Madha, Madh, Mel, Parified Honey

Mological Source:-Honey is a visad and sweet secretion stored in the houcy comb by various species of bees, such an Apis mellifera, Apis dorsata, Apis flerea, Apis indica nod other species of Apis, belonging to bamily Apidese (Order: Hymenotera).

Geographical Source:- Himey is available in abundance in Africa, Indan, Jamaica, Australia, California, Chill, Great Britain and New Zealand

Collection and Preparation

The noctar of the fasters in a watery solution contining 25% sucrose and 75% wate: The worker bee incks thie nectar through its hollow tube of mouth (proboscas) and deposits in honey-sac located in abdomen. He enzyme invertase present in satees of the bee convers nestar чет да which is partially ulirad by the bee and the remaining is deposited une honey conrib. Finney comsh is smoked to remove the bees and hoory is shamed try apply the pressure to it or allowing i to drain naturally. The hatey of commerce is heated to 50°C and allowed to stand. The impurities which Boat over the surface are skimmed off and the liquid is diluted with water to

produes honey of 1.35 density Natural honey has the Gastty of 147. Many-a-time, honey is attracted from the comb by camrifugation. I mart he free hom imenn substances. Honey is liable to fermentation, seleninis aitably processed Honey is heated to 80°C before it is sest to the market, so as to avoid famaututions. I should be aneled rapidly on else ir darkness in colour on keeping.

FORMULATION TABLE:

Table 01:- Formula Table

Sr. No	Ingreadients	Quantity taken	Uses
1.	Chocolate base	20 g	Provide chocolate flavour ,fat and smooth texture.
2.	Tulsi { extract }	2 g	Boosts immunity, relieves stress and act as an antioxidant.
3.	Mint { extract }	1.5 g	Aids digestion and provides cooling effects
4.	honey	3 g	Antioxidant and moisture, suopprt digestion and immunity
5.	Valina	0.3	Inhance flavour and mask bitterness from herb
6.	Water { q.s }	3.2	Used to desolve herbal extract and added to just enough to maintain texture

METHOD OF PREPARATION:

1. Measuring Ingredients: All ingredients were carefully weighed.
2. Melting the Chocolate Base: A water bath was heated to approximately 50°C, and the chocolate base was melted in a porcelain dish until it was free-flowing.

3. Making Sugar Syrup: Sugar syrup was prepared by dissolving sugar in the appropriate amount of distilled water in a beaker placed in the water bath.
4. Combining Ingredients: The prepared sugar syrup was added to the melted chocolate base in the required quantity.
5. Adding Herbal Extracts: The crude extracts of Tulsi and Pudina were incorporated into the mixture, which was stirred continuously.
6. Setting the Chocolate: The final mixture containing the herbal extracts was poured into molds and placed in the freezer to set overnight.

TEST RESULT:

1. Chemical test:

Sr. No	Name of test	Test group	Control group
1.	Carbohydrates	Positive	Positive
2.	protin	Positive	Positive
3.	Amino acid	Positive	Negative
4.	saponin	Negative	Negative

Table 02:- Chemical Test

2. pH:

The pH of chocolate formulation was done by using pH meter and the result was found to be **6.4**

3. Blooming test:

Sr. No	Test	Result
1.	Fat blom	No
2.	Sugar bloom	No

Table 03:- Chemical Test

4. Stability:

Parameters	Storage condition	At the time of prearation	After the one month
Colour, odour, taste, mouth feel, appearance	2-8 °C	Brown, chocalaty, slightly bitter, glossy	No change

CONCLUSION:

Pediatric herbal chocolate offers a unique and appealing way to support children's health by combining the nutritional benefits of selected herbs with the enjoyable taste of chocolate. This innovative formulation can enhance compliance among young patients, providing a natural supplement for immune support, digestion, or overall well-being. However, it is essential to ensure the safety, appropriate dosing, and palatability of the product through rigorous testing and adherence to pediatric health standards. With proper formulation and clinical backing, herbal chocolate can be a valuable addition to pediatric wellness solutions.

REFERENCES:

1. Sharma, M., & Jain, D. K. (2012). Chocolate formulation as drug delivery system for Pediatrics. Indonesian Journal of Pharmacy, 23(4), 216-224.
2. Chaudhari, S. A., Devare, R. R., Dewang, P. S., Patil, V. B., Patil, A. M., & Pawar, S. P. (2018). Review: chocolate formulation as drug delivery system. Indian Journal of Drugs, 6(2), 136-141.
3. Pawar, P. D., Bakliwal, A. A., Talele, S. G., & Jadhav, A. G. (2019). Formulation and evaluation of herbal chocolate as nervine tonic. Journal of Pharmaceutical Sciences and Research, 11(5), 1808-1813.
4. Shinde, A. V., & Gaikwad, D. D. (2023). Development and evaluation of antidiabetic herbal chocolate using guava and bael leaves. EPRA International Journal of Research and Development (IJSR), 8(6). Retrieved from (https://eprajournals.com/IJSR/article/12976)
5. Faccinetto-Beltrán, P., Gómez-Fernández, A. R., Santacruz, A., & Jacobo-Velázquez, D. A. (2021). Chocolate as carrier to deliver bioactive ingredients: Current advances and future perspectives. Foods, 10(9), 2065. (https://doi.org/10.3390/foods10092065)
6. Rajgire, A. D., Raut, Y. B., & Bais, S. K. (2024). Formulation and evaluation of brain-boosting herbal chocolate. International Journal of Pharmacy and Herbal Technology, 2(3), 2223–2230. Retrieved from (https://ijprdjournal.com/archive_abs.php?id=333)
7. Usha Kiran Reddy, T., Sohel, S. M., Rajyalakshmi, K. G., Divya, B. J., Bhargavi, G., Sandhya, S., Venkata Anusha, G., Anish Kumar, A., Harshavardhan, P., Divya, K., Dharani, K., Reddy, O. V. S., Apparao, C., & Murthy, S. D. S. (2024). Formulation and evaluation of herbs infused chocolate. Mathews Journal of Pharmaceutical Science, 8(3), 40. (https://doi.org/10.30654/MJPS.10040)
8. Faccinetto-Beltrán, P., Gómez-Fernández, A. R., Santacruz, A., & Jacobo-Velázquez, D. A. (2021). Chocolate as carrier to deliver bioactive ingredients: Current advances and future perspectives. Foods, 10(9), 2065. (https://doi.org/10.3390/foods10092065)
9. Kokate, C. K., Purohit, A. P., & Gokhale, S. B. (2008). Pharmacognosy (45th ed.). Pune: Nirali Prakashan. (tulsi , pudina and honey)
10. Journal of Pharmacognosy and Phytochemistry – Many studies on Tulsi extraction and its bioactives.
11. review article in International Journal of Creative Research Thoughts discusses different methods for extracting mint oil from Mentha piperita leaves
12. Achliya, G. S., Wadodkar, S. G., & Dorle, A. K. (2005). Evaluation of CNS activity of Bramhighrita. Indian Journal of Pharmacology, 37(1), 33-36.