WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 5, 212-222. Review Article ISSN 2277–7105

A BRIEF REVIEW ON: HERBAL CANDY

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Article Received on
07 January 2024,

Revised on 27 Jan. 2024,
Accepted on 17 Feb. 2024

DOI: 10.20959/wjpr20245-31415

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ABSTRACT

The prevalence of throat infections is rising day-by-day due to the increasing pollution, bacterial infection, gastro-intestinal disease, injury, allergies etc. This study aimed to formulate and evaluate medicated herbal candy**.** Candies come under the category of sugar confectionary. This review focuses on herbal candy applications and future prospects. Hard candies known as mishri and nabaat were well-liked in Persia and India. In the initial part of the ninth century, sugar sweets were first produced. Candies are considered to be the instant sources of energy as they provide high calories and are also rich in flavour and palatability. They can be easily prepared, packed, transported and stored. A combination of herbal extracts, including clove, ginger, honey, and other botanical ingredients with expectorant and anti-inflammatory qualities, are contents of herbal candies. Some herbal candies may have fewer calories than traditional candies, making them a lighter option for those watching their calorie intake. Herbal candies often have a pleasant and unique flavor profile due to the inclusion of herbs, making them a refreshing treat**.** The candies were evaluated for their physiochemical parameter and antibacterial properties. The antibacterial properties was evaluated by sensory evaluation, pH determination, ash value, shelf life study, evaluation of microbial analysis and phytochemical analysis of plant extract.

KEYWORDS: Herbal Candy, Soothing, Anti-inflammatory, Anti-bacterial.

INTRODUCTION

A particular kind of candy called herbal candy is designed specifically to ease sore throats. Herbal candy is made with natural ingredients from medicinal herbs and plants, which are well-known for their calming and restorative qualities, as opposed to ordinary candies. Commonly, people use these candies to treat sore throats, coughs, and other respiratory ailments. By relieving sore throats, and enhancing general comfort, they are intended to offer momentary relief.[1] A combination of herbal extracts, including clove, ginger, honey, and other botanical ingredients with expectorant and anti-inflammatory qualities, are contents of herbal candies. These herbs are thought to help reduce cough symptoms by reducing inflammation, opening up the airways, and relieving congestion. Herbal candies are popular because of their convenient use and delicious flavor in addition to their possible medical advantages.[2]

Candies come under the category of sugar confectionary. The sweetening agent used in the candy preparation is mainly sugar which is composed of sucrose (99.7% of the total weight). Some candies are made from honey which is a natural sweetener. Honey has high calorific value than sugar. 5 gram of sugar contains 49 calories and 5 gram of honey contains 68 calories.[3]

Candies are mainly classified into two types

1. Crystalline candies.
2. Non-crystalline candies.

Rock candy is another name for hard candy. It is a product made only of sugar. It is mainly prepared with water and sugar together. The concept of crystallization serves as the foundation for the production of hard candies. Le Chatelier's principle states that "a system which is shifted away from equilibrium acts to restore the equilibrium by reacting in opposition to the shift" to describe the crystallization process. Maillard browning produces hard candies. The term "Maillard browning" refers to a type of browning that occurs naturally and is caused by an amino acid's amino group reacting with the carbonyl group of free sugar. Because they have the least amount of moisture in the finished product, hard candies are different from all other kinds.[4]

Hard candies known as mishri and nabaat were well-liked in Persia and India. In the initial part of the ninth century, sugar sweets were first produced.[5] Candies are considered to be the

instant sources of energy as they provide high calories and are also rich in flavour and palatability. They can be easily prepared, packed, transported and stored.[6]

ADVANTAGES

1) Herbal candy has better consumer preference due to their great taste, flavour, and elegant appearance with attractive colours.
2) Flavoured and sweetened candies help in masking bitter and unpleasant taste of active drugs substance.
3) It is well-received by patients who struggle with swallowing.[23,29]

Various herbal candy products available in market

Brand name	Active ingredient	Mfg company
Vicks®	Menthol	Procter and Gamble Helen of Troy Limited.
Dabur	Honey	Makson pharmaceutical pvt. Limited.
Himalaya Koflet®	Ginger	Himalaya USA.
Strepsils®	Amylmetacresol	Reckitt Benckiser Nottingham.

Herbal plants used in formulation of herbal candy

1) Mahua

Botanical Name: Madhuca Longifolia.

Family: Spoteaceae.

Discription: Sugars found in mahua flowers give them their sweet taste. It has vitamin C, which is the active ingredient in antioxidants. Additionally, it contains vitamin A. Mahua flowers are low in fats and proteins and high in a variety of minerals, including calcium and phosphorus. The madhuca flower's medicinal Activities include wound healing, antibacterial, antioxidant, anti-inflammatory, analgesic, antipyretic, and anti-ulcer properties.[7, 25,26]

2) Peepal

Botanical Name: Ficus religiosa.

Family: Moraceae.

Discription: Ficus religiosa contains compounds with anti-inflammatory properties which can help reduce inflammation in the respiratory tract. This can be beneficial for Soothing irritated throat tissues and reducing cough-related discomfort.

3) Ginger

Botanical Name: Zingibar officinale.

Family: Zingiberaceae

Discription: Also known as cooking stem, canton. Zingiberaceae. Widely cultivates in Tropical Asia. Its root is used as herbal remedy for a wide range of conditions such as nausea, vomiting, coughs, spasms, general pain, indigestion, colic, abdominal chills, colds, influenza, peripheral circulatory problems, spasmodic pain, rheumatism, menstrual cramps, and sprains. The rhizome is used as food flavouring and in beverages.[28]

4) Guduchi

Botanical Name: Tinospora cordifolia.

Family: Menispermaceae.

Dicription :- Guduchi is a climbing shrub that grows on other trees. The stem of guduchi is consider highly effective because of its high nutrition content and the alkaloids. Guduchi helps to reduce excessive thirst, pain and burning sensation because of its tridosha balancing property. Guduchi reduces asthmatic symptoms.[19,20,21]

General method for preparation of candy

1. In a deep saucepan, combine the sugar and water. Bring to a boil, then stir in the butter and salt. The mixture was stirred with a wooden spoon.
2. Using a spatula, add each powder one at a time while stirring continuously.
3. The mixture was supplemented with preservative and flavoring agent.
4. The mixture was immediately poured into the candy mold (sprayed with vegetable oil to prevent the mixture from sticking to the mold wall) and allowed to cool by being placed in cooling racks.
5. Appropriately stored at the right temperature after cooling.[13,14,15]

EVALUATION TESTS

1. Sensory Evaluation

The hard cough candy were examined in terms of the different organoleptic characteristics i.e., color, appearance, taste, texture, flavour, mouth feel and overall acceptability.[39,40]

2. pH Measurement

The acidity or alkalinity of a candy was indicated by using lab pH meter, a scale from 1 to 14. 1%w/v solution of candy was prepared by dissolving 1 gm candy in 100ml distilled water and its pH was recorded.[8]

3. Ash Value

Weigh accurately about 3gm of the powdered drug in silica crucible. Place the powdered

drug in Muffle furnace until the sample is turned into ash. and allow it to cool. Weigh the ash and calculate the % of the total ash in contrast to the air dried sample.[29]

4. Shelf life study

Shelf-life study was started from the 2nd day of making the product. Mahua candy was stored under the refrigerated condition for 4 weeks in its packaging materials. The product was observed at frequent intervals for any change inappropriate color, odour, texture, taste and moisture.[9]

5. Evaluation of Microbial analysis

Determination of bacteria helps in analysis of sample quality after the production and storage practices. This is done by cup plate method and total plate count method (serial dilution method).[30]

1) Serial dilution method

- Mix the bacterial suspension by rolling the test tubes between the palms of hands to ensure even dispersion of cells in the cultures.
- By using sterile pipette, aseptically transfer 1ml from the bacterial suspension to first flask containing 99ml saline solution.
- Discard the pipette in the beaker of disinfectant. The bacterial suspension has been diluted 100 times (10^{-2}). Mix. the contents of the first flask and transfer 1ml suspension to the second flask (containing 99ml saline) with a sterile pipette.
- This original culture is diluted (10-4). Mix the contents of the second flask and transfer 1ml suspension to third flask containing 99ml sterile solution with a sterile pipette.
- Finally, in the third flask bacterial suspension is diluted to 10-6.
- Add approximately 15 to 20ml nutrient agar medium into three large size test tubes, sterilize by autoclave at 1210C for 15 minutes and cooled at 45^{o}C.
- Mix all the dilutions and transfer 1ml from each dilution to large size test tubes.
- Mix the bacterial suspension by rolling the test tubes between the palms of hands to ensure even dispersion of culture in the medium.
- Immediately pour the media of three test tubes into 3 sterile petri plates to solidify. Incubate these plates in an inverted position for 24 to 48 hours at 37oC.[10]

2) Cup plate method

- Each petri dish was filled to a depth of 4-5 mm with a nutrient agar medium that was previously inoculated with suitable inoculums of suitable test organism, and then allowed to solidify.
- The petri dish were specially selected with flat bottom and were placed on level surface so as to ensure that the layer of medium is in uniform thickness.
- The petri dishes were sterilized at 160-170°C in hot air oven for 30 mins before use.
- Small sterile borer of uniform size was placed approximately at 10 cm height, having an internal diameter of approximately 6-8 mm and made of aluminium (or) stainless steel.
- Each plate was divided in to five equal portions along the diameter. To each portion one cylindrical cavity was made in medium with the help of sterile borer. Five cavities for test compounds were made. The petri dishes were incubated at 37°C for 18 hours. Diameter of the zone of inhibition (ZOI) was measured and the average diameter for each sample was calculated.[10]

6. Phytochemical analysis of Plant extract

1. Test for Carbohydrates

(a) Molisch's Test: 2-3 drops of Molisch's reagent added to small amount of analyte in test tube and mixed well. Few drops of concentrated sulphuric acid added drop-wise along walls of test tube to facilitate the formation of purple to reddish brown color.

(b) Fehling's Test: Add sample to test tube and add Fehling's solution in tube. The tube must kept in water bath and make observation and record if there is any development of brick red precipitate.

(c) Benedict Test: Add sample in test tube and add Benedict's solution to the test tube and heat it in water bath and observe the development of brick red color.[33,34]

2. Test for Alkloids

a) Mayer's Test: 2-3ml filtrate, add few drops Mayer's reagent gives white ppts.

b) Hager's Test: 2-3ml filtrate with few drops Hager's reagent gives Yellow ppts.

c) Wagner's Test: 2-3ml filtrate with few drops of Wagner's reagent gives reddish brown ppts.

d) Dragendroff's Test: 2-3 ml filtrate with few drops of Dragendroff's reagent gives red brick color.[37,38]

3. Test for Tannins

(a) FeCl3 Test: To 2-3mlof aqueous or alcoholic extract, add few drops of 5% FeCl3 solution. It will give black color precipitate.

(b) Lead acetate Test: To 2-3ml of aqueous or alcoholic extract, add few drops of lead acetate solution. It gives white precipitate.[24]

4. Test for Proteins

(a) Biuret's Test: 2 mLfiltrate + 1 drop of 2% copper sulphate sol, add 1mL of 95% ethanol, KOH pellets. It gives a pink colored solution.

(b) Millon's Test: 2 mL filtrate, few drops of Millon's reagent, gives a white precipitate.

(c) Ninhydrin's Test: 2 mL filtrate, add 2 drops of Ninhydrin solution (10mg ninhydrin +200mL acetone), it gives a purple colored solution.

(d) Xanthoproteic test: Sample extract, few drops of conc. Nitric acid, it gives a yellow colored solution.[27]

FUTURE SCOPE

Herbal candies have a promising future as people are increasingly seeking natural alternatives. With a focus on wellness and a growing interest in herbal remedies, these candies could tap into a health-conscious market.

CONCLUSION

There is high demand of herbal drug now days. herbal plant possess .Herbal candy is prepared for problem of sore throat. Herbal plant famous for possessing lot of pharmacological properties. Pharmacological activities majorly antibacterial, anti-inflammatory, analgesic etc. The present review provides detail information about herbal candy and their medicinal uses.

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