



## REVIEW ON "FORMULATION AND EVALUATION OF PEDIATRIC HERBAL CHOCOLATE"

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### ABSTRACT

The chocolate is most loving food of children where as the medicine is hating substance. So, objective of present study was to formulate the chocolate that contain drug i.e., medicated chocolate to prevent the disease. In children cough, viral infection is most common diseases. Ocimum sanctum, Tulsi is the herbal drug which having several medicinal properties, antitussive activity is one of them. Thus, we have to formulate the chocolate with aqueous extract of tulsi that gives antitussive activity. Further, prepared medicated chocolate is evaluated for general appearance, dimension, hardness, blooming test, drug content determination, physical stability etc. Chocolate is adaptable food that can be combined to create completely different taste and texture sensations. Also, chocolate is an anhydrous medium that resist microbial growth and to hydrolysis of water-sensitive active agents. Chocolate abundantly contains compounds such as saturated fat, polyphenols, sterols, di and triterpenes, aliphatic alcohols, and methylxanthines.<sup>[1]</sup> Phenyl ethylamine that naturally occurs in the brain and it is termed as 'the love drug' which produces the feeling of well-being and contentment. Phenyl ethylamine also present in chocolate that raises blood pressure, also blood sugar level that gives the feeling of wellness.<sup>[2]</sup> There are five basic human taste qualities i.e., sweet, sour, bitter, salty, savory. Sweet taste is one of the most pleasurable senses. The goal of the sweet taste is to detect the highly calorific saccharides for ingestion.

**KEYWORDS:** Viral Infection, Chocolate, Pediatric, Herbal.

### INTRODUCTION

The chocolate is most loving food of children where as the medicine is hating substance. So, objective of present study was to formulate the chocolate that contain drug i.e., medicated chocolate to prevent the disease. In children cough, viral infection is most common diseases. Ocimum sanctum, Tulsi is the herbal drug which having several medicinal properties, antitussive activity is one of them. Thus, we have to formulate the chocolate with aqueous extract of tulsi that gives antitussive activity. Further, prepared medicated chocolate is evaluated for general appearance, dimension, hardness, blooming test, drug content determination, physical stability etc. Chocolate is adaptable food that can be combined to create completely different taste and texture sensations. Also, chocolate is an anhydrous medium that resist microbial growth and to hydrolysis of water-sensitive active agents. Chocolate abundantly contains compounds such as saturated fat, polyphenols, sterols, di and triterpenes, aliphatic alcohols, and methylxanthines. Phenyl ethylamine that naturally occurs in the brain and it is termed as „the love drug“ which produces the feeling of well-being and contentment. Phenyl ethylamine also present in chocolate that raises blood pressure, also blood sugar level that gives the feeling of

wellness. There are five basic human taste qualities i.e., sweet, sour, bitter, salty, savory. Sweet taste is one of the most pleasurable senses. The goal of the sweet taste is to detect the highly calorific saccharides for ingestion. Medicated chocolate is prepared by using chocolate base and the drug is incorporated into prepared chocolate base. As the drug is incorporated within the chocolate and the drug is released from the chocolate, it is called as Chocolate drug delivery system. It is a best drug delivery system specifically for children. The aim of the present study was to prepare Pediatric Herbal Chocolate. Furthermore, to evaluate the physicochemical parameters of the prepared formulations so that they can be further standardized and used commercially. The chocolate is most loving food of children where as the medicine is hating substance. So, objective of present study was to formulate the chocolate that contain drug i.e., medicated chocolate to prevent the disease. In children cough, viral infection is most common diseases. Ocimum sanctum, Tulsi is the herbal drug which having several medicinal properties, antitussive activity is one of them. Thus, we have to formulate the chocolate with aqueous extract of tulsi that gives antitussive activity. Further, prepared medicated chocolate is evaluated for general appearance,

dimension, hardness, blooming test, drug content determination, physical stability etc.

Oral route is one of the best routes for patient compliance. It has its own advantages. Per contra, it has its own disadvantages too. Drugs with first pass metabolism cannot be administered through oral route. So, there is a situation to consider absorptive mucosa as the route of administration to administer drugs with first pass metabolism. One of the examples of absorptive mucosa includes Trans mucosal route as a route of administration. A Trans mucosal route includes mucosal linings along nasal, vaginal, rectal and oral cavities.

Chocolate is highly sophisticated a versatile food that is combined to create completely different taste and texture sensations. Chocolate is also an anhydrous medium and is therefore resistant to microbial growth and to hydrolysis of water-sensitive active agents. Chocolate is well suited as a vehicle for delivering active agents in many aspects. For example, the organoleptic characteristics of chocolate are excellent for masking unpleasant flavors associated with some active agents and giving a smooth and creamy texture to compositions of active agents that are otherwise undesirably gritty. Chocolate is a range of products derived from cocoa (cacao), mixed with fat (i.e., cocoa butter) and finely powdered sugar to produce a solid confectionery.

#### **Health Benefits of Tulsi (Holi Basil) for Kids**

Tulsi leaves (also known as Holi Basil) can help to cure many health diseases in both adults and kids. Many people are aware that Tulsi leaves or holy basil has remedial power. It is one of the best medicinal basil discovered till now. Tulsi has several medicinal properties and is a very important herb particularly in Ayurveda and Naturopathy. Tulsi has essential oils which effectively act on respiratory system and helps fight pollution to some extent. There are many more benefits and it is advisable to make it a habit of your child to have few leaves of Tulsi every day. The following are the some of the major health benefits of Tulsi.

#### **Great for Healing skin problems**

Mixing Tulsi with bathing water or by simply washing your child's face with it will keep your child away from all kinds of skin infections. Just by rubbing Tulsi leaves on your child's body will save him or her from mosquito bites and even make other insects stay away.

#### **Boosts the immunity**

Holy basil has powerful healing and medicinal properties. You can boil some basil leaves in water, and let your child drink this every morning. It is a safe way to boost their immune system.

#### **Good dental health**

Tulsi has the power to fight bacteria that develops in children's mouth. These bacteria, if not treated on time,

leads to dental issues like tartar, plaque, bad breath and cavities. Regular usage of Tulsi will save your child from suffering from these problems.

#### **Pudina/Mint Leaves: Health Benefits**

Mint or Mentha is one of the oldest herbs widely used in global cuisines and it is highly prized for its innumerable therapeutic properties and uses. The divine flavour of pudina leaves renders a distinct taste and aroma to the dishes and it is used to make chutney, raita and refreshing drink. Mint leaves are also valued as a mouth freshener since times immemorial for its amazing healing properties.

#### **Mint leaves**

Mint the aromatic herb also known as Mentha, belongs to the plant family Lamiaceae, there are more than 13-24 species of mint exists due to hybridization and overlapping of many species. Spearmint and peppermint are the other two common varieties of mint. Mint species is extensively distributed and grows in wet moist land across India, Europe, Africa, Australia and other Asian countries.

The perennial herb grows to 1-2 feet tall, spread underground and overground with vertical branches. The leaves are arranged in opposite pairs, oblong with a serrated margin. Pudina grows all-round the year, near moist places and in extreme climatic conditions. It is a fast-growing herb which needs minimal care and can be easily grown in your kitchen garden.

Mint leaves go by the vernacular name Pudina in all Indian languages. In Sanskrit, it is known as pudina, putiha, podinaka, phudino and podina.

#### **Pudina/Mint Leaves Uses**

Pudina leaves can be used fresh or dried in a spectrum of culinary dishes. The leaves render a warm, fresh, aromatic, sweet flavour and deliver a cool aftertaste which is used in making tea, beverages, jellies, syrups, ice creams and candies. Mint flavored tea is quite popular in India and also widely relished in the Arabian and African countries. Mint julep or mojito is an alcohol flavored cocktail drink.

Mint essential oil and menthol are used as a flavouring agent in mouth fresheners, drinks, antiseptic mouthwashes, toothpaste, chewing gum etc., Menthol, the compound present in mint renders the characteristic aroma and flavors to all mint based products.

Menthol is the key element in mint essential oil which is an ingredient in many cosmetics, perfumes and also used as an aromatherapy oil to calm the digestive system.

#### **Ayurvedic Uses**

The aromatic ayurvedic herb is a natural coolant, with a sweet and a pungent aftertaste. Mint has the quality to pacify all the three doshas and chiefly manages the Pitta

dosha. Pudina leaves owing to its carminative properties helps in digestion and assimilation of food and treats

colic pain. The extract of pudina leaves is used to treat intestinal worms.

#### Plant Profile

<b>Botanical Name</b>	Ocimumtenuiflorum.
<b>Synonym</b>	Ocimum sanctum, Holy Basli.
<b>Common name</b>	Tulsi.
<b>Family</b>	Lamiaceae.
<b>Order</b>	Lamiales.
<b>Kingdom</b>	Plantae.
<b>Genus</b>	Ocimum.
<b>Division</b>	Magnoliophyta
<b>Active Phytochemicals</b>	Oleanolic acid, Ursolic acid, Rosmarinic acid, Eugenol, Carvacrol, Linalool.
<b>Part used for research</b>	Leaves
<b>Generaluses</b>	Tulsi is used to treat insect bites. Tulsi is also used to treat heart disease and fever. Tulsi is also used to treat respiratory problems. Tulsi is used to cure fever, common cold and sore throat, headaches and kidney stones



<b>Botanical Name</b>	Mentha
<b>Synonym</b>	Lamiaceae, Mint, Genus Mentha, Mint family.
<b>Common name</b>	Pudina
<b>Family</b>	Lamiaceae
<b>Order</b>	Lamiales
<b>Kingdom</b>	Plantae.
<b>Genus</b>	Mentha
<b>Division</b>	Magnoliophyta
<b>Active Phytochemicals</b>	Menthol, Menthone, Limonene, Methyl acetate, Beta pinene and Beta caryophyllene.
<b>Part used for research</b>	Leaves
<b>General uses</b>	Mentha species, one of the world's oldest and most popular herbs, are widely used in cooking, in cosmetics, and as alternative or complementary therapy, mainly for the treatment of gastrointestinal disorders like flatulence, indigestion, nausea, vomiting, anorexia, and ulcerative colitis



**Extraction**

The fresh leaves of Tulsi were collected from home garden and washed with water to remove dust. Further leaves were crushed and converted into paste with the help of distilled water by using grinding machine. Paste of Tulsi leaves boiled with distilled water for 30-45 minutes i.e., Decoction method. Here, extra care should be taken to avoid the overheating. Thereafter, extract subjected to filtration and evaporated whole water by using electric water bath so as to get crude extract. Further phytochemical analysis of aqueous extract of Tulsi was carried out by performing identification test



**Method of preparation of Medicated**

Water bath was set in such a way that water become hot having temperature about 50°C. Then chocolate base was melted in porcelain dish till it become free flowing. On another side, sugar syrup was prepared by taking sugar in appropriate quantity with distilled water in beaker on water bath. Then add prepared sugar syrup in required quantity into melted chocolate base. After above step, appropriate quantity of drug extract i.e., crude extract of Tulsi 250mg was added to it and stirred continuously. Then whole mass of chocolate base was poured in a silicon chocolate mould and refrigerated till it become solid form approximate 3-6Hrs

**1. Preparation Of Medicated Chocolate.**



**Formulation Table**

Sr.No.	Ingredients	Quantity
1	Chocolate base	5gm
2	Sugar	5 gm
3	Tulsi Extract	250mg
4	Water	qs

**2. Prepared Medicated Chocolate Filled Into The Moulds & Allow For Freezer.**



Sr.No.	Ingredients	Quantity
1	Chocolate base	5gm
2	Sugar	5 gm
3	Pudina Extract	250mg
4	Water	qs

### 3. Physical Stability Testing Of Medicated Chocolate.

#### Evaluation Parameters Evaluation

##### 1. Phytochemical analysis

To 2-3 ml of aqueous extract, add a few drops of following reagents.

##### Phytochemical screening.

Sr.No.	Test	Observation
1	5%Fecl3 solution	Deep blue black colour
2	Lead acetate solution	Precipitate formation
3	Bromine water	water Decolouration of bromine water
4	Dilute Iodine solution	Transient red colour

##### 2) General appearance

**Colour** - Dark Brown

**Odour** - Chocolate with no brunt, no smoky

**Taste** - Slight sweet

**Texture** - Smooth and even

##### 3. Physical stability

To check the physical stability, sample of chocolate was kept in closed container for 1 month at 28°C After one month interval, Test sample of chocolate was observed for physical appearance and drug degradation.

##### 4. Drug content determination

Drug content of medicated chocolate was determined by Thin Layer Chromatography. Here, control was taken as aqueous Tulsi extract and test as melted chocolate sample. TLC plates were prepared by using silica G and plates were activated for ½ Hr. Spotting was carried out on both plates i.e., control and test plate by using capillary. Run both the plates in mobile phase i.e., Toluene: Ethyl acetate: Water having ratio 7:3:2. After running of both plates air drying of plates was carried out. Further, visualization of both plates was carried out by using iodine chamber. By comparing the RF value of both the plates i.e., control and test Drug content in Medicated chocolate was determined

### RESULT AND CONCLUSION

In the present study, development of Pediatric Herbal Chocolate having antitussive activity was carried out. Aqueous extract of Tulsi leaves was prepared and phytochemical analysis was carried out to check the presence of desired compounds that shows the acceptable results. By using prepared extract medicated chocolate prepared and evaluated for general appearance, dimension, hardness, blooming test, drug content determination and physical stability. From above study, we concluded that the chocolate provides smooth and creamy texture to the formulation and are good for masking the unpleasant taste associated with some drugs. Also, good oral drug delivery system to gives therapeutic effect.

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