“Formulation and Evaluation of Pediatric Herbal Chocolate”

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Abstract

In order to make treatment more enticing, the goal of this project is to create a pediatric-friendly herbal chocolate by fusing medication with chocolate, one of kids' favorite delicacies. Children frequently get viral infections and coughs, and Ocimum sanctum, or tulsi, is a popular herbal treatment with important therapeutic benefits, such as antitussive (cough-relieving) actions. The objective is to develop a chocolate formulation with these medicinal advantages that contains an aqueous extract of tulsi. Numerous aspects of the prepared medicated chocolate will be assessed, such as size, shape, hardness, bloom (fat stability), drug content, and physical

Due to its versatility, chocolate can be combined in a wide range of ways in terms of taste and texture. It also acts as an anhydrous medium, which inhibits the growth of microorganisms and lowers the possibility of water-sensitive therapeutic compounds hydrolyzing. Saturated fats, polyphenols, sterols, and methylxanthines are among the many healthy substances found in chocolate.

Key words: herbal, pediatric, chocolate, viral infection

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Introduction

Children love chocolate more than any other food, yet they despise medicine. In order to prevent disease, the goal of the current study was to create medicated chocolate, or chocolate that contains drugs. The most prevalent illness in children whocontract a viral infection. The herbal remedy tulsi, or Ocimumsanctum, has a number of therapeutic benefits, one of which isits antitussive action. It is therefore necessary to create a chocolate that contains an aqueous tulsi extract that has antitussive properties. The manufactured medicated chocolate is also assessed for overall look, dimensions, hardness, blooming test, medication content, physical stability, and other factors. Chocolate is a flexible food that can be used to combine flavors and textures to create entirely new experiences. One of the best methods for patient compliance is the oral route. It has benefits of its own. Contrarily, it also has drawbacks of its own. Medications having first-pass metabolism cannot be taken orally. Therefore, there is a circumstance when medications with first pass metabolism should be administered via the absorptive mucosa. Tran's mucosal route serves as an illustration of an absorptive mucosa and is used for administration. Mucosal linings in thenose, vaginal, rectal, and oral cavities are included in a Tran'smucosal route.

Chocolate is a very sophisticated and adaptable food that can be used to generate a wide variety of taste and texture experiences. Additionally, because chocolate is an anhydrousmedia, it resists the growth of microorganisms and the hydrolysis of active ingredients that are sensitive to water.

One of the earliest herbs, mint, or mentha, is highly valued for its numerous medicinal benefits and applications. It is utilized in cuisines all over the world. Pudina leaves are used to produce chutney, raita, and cooling drinks. Their delicious flavour gives foods a unique taste and scent. Ever since ancient times, mint leaves have been prized for their remarkable medicinal qualities and as a mouth refresher.

Mint foliage :-

The fragrant herb known as mint, or Mentha, is a member of the Lamiaceae family of plants. Because of species overlap and hybridization, there are between 13 and 24 different species of mint. The other two popular kinds of mint are peppermint and spearmint

LITERATURE REVIEW :-

Sr. No	Name of Authors	Title of Research	Description
1	Dr. Firoj A. Tamboli	Formulation and evaluation of herbal chocolate.	Herbal chocolate by using the Ocimum sanctum (Tulsi).
2	Sharma Mayank And Jain Dinesh Kumar	Chocolate formulation as drug delivery system for pediatrics.	To develop a palatable chocolate formulation of Domperidone and Cetirizine for pediatric administration and to increase patient's desire to consume the medication.
3	David L.Katz, Kim Doughtly and Ather Ali	Cocoa and Chocolate in Human Health and Disease.	How to Formulate the Cocoa and chocolate from the herbal plants.
4	Pallavi D.Pawar. And Akshada A.Bakliwal.	Formulation and evaluation of herbal chocolate as tonic	Herbal chocolate formulation used as the tonic and immunity buster.

Aim: To Formulate and Evaluate Pediatric Herbal Chocolate.

The primary goal of this work is to provide a novel herbal chocolate and a method for making it. Since children love chocolate the most and dislike medicine, the present study's goal was to create medicated chocolate, or chocolate that contains a drug, in order to prevent disease. Since viral infections are the most common causes of childhood coughs, Ocimum sanctum, or Tulsi, is a herbal drug with several medicinal properties, one of which is antitussive activity. As a result, we had to formulate the chocolate using an aqueous extract of Tulsi, which has antitussive activity.

Plant Profile

1. Tulsi

Botonical Name	Ocimum tenuiflorum.
Synonym	Ocimum sanctum, Holy Basli.
Common name	Tulsi.
Family	Lamiaceae.
Order	Lamiales.
Kingdom	Plantae.
Genus	Ocimum.
Division	Magnoliophyta
Active Phytochemicals	Oleanolic acid, Ursolic acid, Rosmarinic acid, Eugenol, Carvacrol, Linalool.
Part used for research	Leaves
Generaluses	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

Fig . Tulsi

2. Mentha

Botonical Name	Mentha
Synonym	Lamiaceae, Mint, Genus Mentha, Mint family.
Common name	Pudina
Family	Lamiaceae
Order	Lamiales
Kingdom	Plantae.
Genus	Mentha
Division	Magnoliophyta
Active Phytochemicals	Menthol, Menthone, Limonene, Methyl acetate, Beta pinene and Beta caryophyllene.
Part used for research	Leaves
General uses	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

Fig.Mentha

Tulsi's pharmacological action : -

Infections with viruses continue to pose a serious risk to the health of people and animals everywhere, including India. Theinability to find affordable antiviral compounds, the infectiousnature of viral pathogens, and their evasion of host-viral pathogens have made treating viral infections in both human and veterinary medicine increasingly challenging. Even though researchers are constantly looking for novel antivirals, natural compounds derived from plant sources offer a huge potential for development into strong antiviral drugs. The identification of novel bioactive compounds derived from fungi, marine animals and plants, bacteria, and plants is a global endeavor. The best way to increase the likelihood of finding therapeutically useful molecules is to research the ethnopharmacological knowledge associated with historic medicinal systems, such as Indian Ayurveda.

Material and Method :-

Sr. No	Name	Description
1	Chocolate base	Fresh chocolate base
2	Sugar	Pure Sugar
3	Tulsi Extract	Natural Extract
4	Pudina Extract	Natural Extract
5	Water	Pure Water

Sr. No.	Name of Equipment
1	Weighing balance
2	Water Bath
3	Mortar and pestle
4	Beaker
5	Stirrer
6	Other glass wares

Procedure:-

Collection of fresh leaves of Tulsi from garden.

Leaves crushed and converted in to the pest

Paste of Tulsi leaves boiled with distilled water for30-45 minutes.

Filtration of extract

Preparation of sugar solution

Chocolate base was melted in porcelain dish till itbecome free flowing.

Addition of the Tulsi extract and sugar solution.

Whole mass of chocolatebase was poured inachocolate mould.

Refrigerated till it become solid form approximate 3-6Hrs.

Final product .

The extraction method's :-

After being picked from the home garden, the fresh Tulsi leaves were cleaned with water to get rid of any dust. Using a grinding machine, more leaves were crushed and made into paste with the use of distilled water. Tulsi leaf paste, made using the decoction method, is cooked for 30 to 45 minutes with purified water. Extra caution needs to
be used in this situation to prevent overheating. To obtain crude extract, the extract was then put through filtration and the entire water was evaporated using an electric water bath. Additional phytochemical analysis of the Tulsi aqueous extract was done using an identification test.

Stability in the body:-

A sample of chocolate was maintained in a closed container at 28°C for a month in order toexamine its physical stability. The test chocolatesample was examined for drug degradation and physical appearance one month later.

Evaluation Parameters :-

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

Determination of drug content

Thin Layer Chromatography was used to determine the amount of drug in the medicated chocolate. Here, melting chocolate was used as the test sample and aqueous Tulsi extract was used as the control. Silica G was used to prepare TLC plates, which were then activated for a half-hour.
Using capillaries, spotting was done on both plates—the test and control plates. Run both plates in the 7:3:2 ratio of tallow, ethyl acetate, and water (the mobile phase). Following the running of both plates, the plates were allowed to air dry.
Additionally, visualizing

Result and Discussion :-

This study focused on creating a Pediatric Herbal Chocolate with antitussive(cough- relieving) properties. Tulsi leaf extract was prepared in an aqueousform, and phytochemical tests confirmed the presence of the targetedcompounds, yielding satisfactory results. Using this extract, a medicatedchocolate formulation was developed and tested across multiple parameters,including appearance, dimensions, hardness, blooming tendency, drug
content, and physical stability.

Conclusion:-

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

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