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FORMULATION AND EVALUATION OF HERBAL TRAVEL CANDY

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ABSTRACT:

The project aimed to develop a new herbal travel candy product that is effective, safe, and palatable. The candy was formulated using a combination of funnel, sugar powder, beat juice, ondansetron, honey. these herbs have been shown to be effective in preventing and treating motion sickness. Motion sickness is a common condition that can cause nausea, vomitting, sweating. It is most commonly experienced when travelling by car, boat or airplane. Motion sickness is caused by a conflict between the brain by the inner ear, eyes, and muscle. This struggle can cause the brain to think that the body is moving when it is not or vice versa. This venture pointed to address this issue by developing a novel herbal travel candy supplemented with ondansetron, a pharmaceutical ingredient known for its anti-nausea properties. The herbal travel candy was formulated using a blend of natural ingredients, including fennel, sugar, beet juice, and honey, known for their potential efficacy in alleviating motion sickness symptoms. Ondansetron, a widely used antiemetic medication, was incorporated into the candy to enhance its anti- nausea effects and provide targeted relief. The formulation underwent rigorous testing to ensure its quality, safety, and efficacy. Organoleptic evaluations confirmed the pleasant taste and aroma of the candy, while physical tests demonstrated its firm texture and uniform shape. Chemical analysis verified the concentration of active ingredients within desired ranges, and microbiological testing confirmed the absence of harmful pathogens. Dissolution testing revealed the candy's rapid dissolution in the mouth, facilitating quick absorption of the herbal ingredients and ondansetron. Stability testing under various conditions confirmed the candy's shelf life and packaging compatibility, ensuring its suitability for travel purposes. In conclusion, the development of the herbal travel candy supplemented with ondansetron represents a promising solution for managing motion sickness during travel. By combining the therapeutic properties of natural herbs with the anti-nausea effects of ondansetron, the candy offers travelers a convenient, natural, and effective remedy for motion sickness symptoms. Further research and innovation in this field hold potential for expanding the range of herbal remedies available to travelers worldwide.

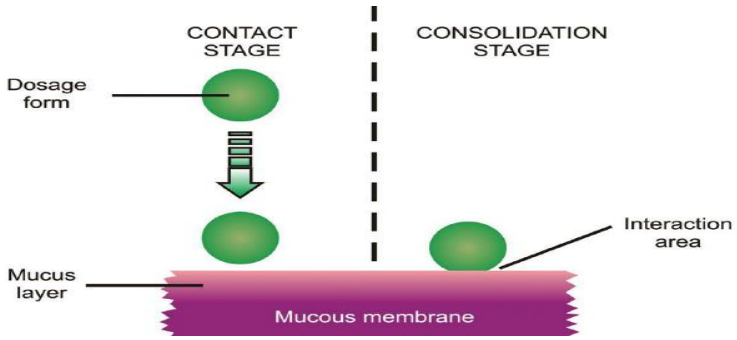


Fig 1. Mucous membrane

INTRODUCTION:

Candy, those delightful treats that tantalize our taste buds and spark childhood memories, have a rich and fascinating history. This introduction delves into the captivating world of candy, exploring its origins, the science behind its creation, and the diverse varieties that satisfy our sweet cravings.

Ancient origins:-

The earliest traces of candy-like confections date back thousands of years. In ancient Egypt, peopledelighted in treats made from nectar, nuts, and dried natural products. Similarly, early civilizations in China and India developed candies using ingredients like honey and sesame seeds. These early confections likely served not only as pleasurable treats but also as a source of energy and a way to preserve valuable ingredients.

Evolution of Sweet Treats:

Over time, the art of candy making evolved alongside advancements in sugar production. The refining of sugar from sugarcane in the Middle Ages revolutionized candy making. This period saw the emergence of hard candies, crystallized sugar creations, and the forerunners of modern chocolates. Global trade routes introduced new ingredients and flavors, further enriching the world of candy.

The Science of Sweets:

Candy making is a unique blend of art and science. Sugar, the primary ingredient, undergoes various transformations through boiling, cooking, and crystallization techniques. Different techniques create a vast array of textures, from the smooth creaminess of fudge to the chewy delight of gummies. Flavorings, colorings, and additional ingredients like nuts and fruits further enhance the sensory experience of candy.

Types of Candy:

Hard candy
Soft candy
Chewy candy
Chocolate candy
Creamy candy
Sugar candy
Fruit candy
Candy bar

Hard candy:

Hard candies are created by boiling sugar syrup to a high temperature, then cooling it to form a solid, glass-like structure. In our project, hard candies provide a convenient and portable format for delivering the therapeutic benefits of herbal ingredients like fennel and ondansetron. Their firm texture ensures durability during travel, making them suitable for on-the-go consumption. Examples of hard candies include classic lollipops and fruit drops. By incorporating hard candies into our product line, we offer travelers a long-lasting and enjoyable solution for managing motion sickness symptoms.

Soft Candy:

Soft candies, on the other hand, are crafted from sugar syrup cooked to a lower temperature, resulting in a chewy and pliable texture. In our project, soft candies provide a delightful and indulgent experience, offering a contrast to the firmness of hard candies. The chewy consistency of soft candies, such as gummies and chewy fruit candies, makes them enjoyable to eat and allows for the incorporation of additional herbal extracts and flavors. Soft candies are perfect for travelers seeking a more comforting and satisfying treat to alleviate motion sickness discomfort during

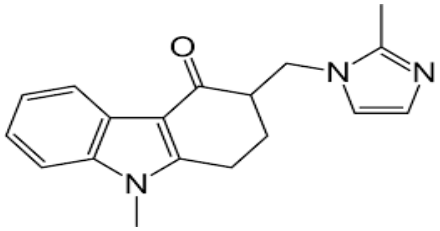
their journey.

Classification of Candy:

According to structure
Crystalline candies
Non-crystalline candies
Crystalline candies :- These candies have a crystalline sugar structure, giving them a hard and brittle texture. Examples include hard candies, rock candy, and lollipops.
Non crystalline:- These candies lack a crystalline structure and are typically softer and chewier. Examples include caramels, gummies, taffy, and fudge.
According to function:- Historically, some candies were used for medicinal purposes. For example, horehound drops were believed to soothe coughs. Note that modern medicine is the recommended approach for health concerns.

Drug Profile:

Structure:-Ondansetron



Ondansetron is a serotonin 5-HT3 receptor antagonits used to prevent nausea and vomiting
Brand Names : Zofran, Zuplenz.
Generic Name : Ondansetron.
Chemical Formula : C18H19N3O
Mechanism: Ondansetron is a selective serotonin 5HT3 receptor antagonist. Its effects are thought to be on both peripheral and central vagus nerves.
Peripheral:- reduce the activity of the peripheral vagus nerves which activate the vomitting centre in medulla oblongata.
Central:- the other is blockage of serotonin receptor in the chemo –receptar tigger zone.

Working of Ondansetron :

Ondansetron acts as a selective serotonin 5-HT3 receptor antagonist, blocking serotonin receptors in the brain and gastrointestinal tract. By inhibiting the transmission of nausea and vomiting signals, ondansetron effectively reduces the sensation of nausea and suppresses the urge to vomit. Its inclusion in the herbal travel candy formulation enhances the candy's anti-nausea properties, providing travelers with an effective remedy for motion sickness symptoms during travel.

Advantages:

Candy can be given to those patients who have difficulty in swallowing.
Keeping the sedate in contact with the verbal depth for an expanded period of time.
It has a pleasant taste and it extends the time that a quantity of drug remains in the oral cavity to elicit a therapeutic effect also, pharmacist can prepare candy extemporaneously with minimal equipment and time.
Easy to prepare with minimum amount of equipment and time.
Do not require water intake for administration. Procedure is non-invasive, as is the case with parentral.
Natural ingredients.
Biodegradable.
Palatability and convenience.
Soothing flavours.

Disadvantages:-
Heat labile drug cannot be used in this formulation because of the high temperature required for preparation.
Drug having minimum bitter taste are suitable.
Heat stable drug are suitable.
Ineffective for moderate sever cases .
Dosage inconsistency.
May not be as widely available.
Safety concers.

Ondansetron powder

Material And Method:

Essential Ingredients:-
Sweeteners
Flavorings
Active Ingredients:-
Ondansetron
Additional Ingredients:-
Coloring agent
Preservative

METHOD OF PREPARATION:

Prepare the Ingredients**.**
Begin by gathering the necessary ingredients: sugar, water, fennel powder, honey, ondansetron, and methyl paraben.Prior to formulation, ensure fennel and ondansetron are in powdered form

Sugar Fennel Powder

Melting Sugar

Place the desired amount of sugar in a breaker and add water. Heat the mixture until the sugar completely melts, forming a clear solution. Continuously stir to prevent burning and ensure even melting.
Testing for Consistency.

To determine if the sugar has reached the desired consistency, perform a drop test :Drop a small amount of the heated solution into another beaker filled with water. Observe the formation of crystals or a wax-like appearance, indicating the desired consistency.

Adding Ingredients.

Once the sugar has reached the desired consistency, carefully add the powdered fennel, honey, ondansetron, and methyl paraben into the mixture. Stir the mixture thoroughly to ensure even distribution of ingredients.

Molding the candy

Pour the blend into sweet molds of your choice. permit the blend to cool and set,forming individual herbal travel candies.

Finalizing the Product.

Once the candies have set, carefully remove them from the molds. Package the candies appropriately for storage and transportation, ensuring they remain intact and protected.

Candy mixture in molds

Ingredients	**Quantity**
1.Sugar	**50 gm**
2.Fennel powder	**25 gm**
3.Ondansetron powder	**40 mg**
4.Honey	**10 ml**
5.Methly paraben	**0.50gm**
6.Beat juice	**Sufficient quantity**
7.Water	**15 ml**

Altrernative techenique :

Boiling Sugar Syrup Method
Cooked Sugar Method
Creaming Method
Gelatin Method
Panning Method.
Extrusion Method.
Centrifugal Casting Method
Pulling Method.
Boiling Sugar Syrup Method:
Boil sugar, water, and sometimes corn syrup to make syrup, then pour into molds to form candies.
Cooked Sugar Method:
Heat sugar until caramelized, add ingredients like nuts or fruit, then pour onto a baking sheet to cool.
Creaming Method:
Heat sugar and butter/cream until dissolved, add flavorings, then let cool to form soft candies
Gelatin Method:
Dissolve gelatin in water, flavor and sweeten, pour into molds, then chill to form gummy candies.
Panning Method:
Coat a core with layers of sugar syrup to create a candy shell, used for candies like Jordan almonds.
Extrusion Method:
Mix and heat candy ingredients to form a dough, then extrude through shaped nozzles to create designs.
Centrifugal Casting Method:
Pour molten sugar into spinning molds to evenly distribute and create intricate candies .
Pulling Method:
Boil sugar, water, and corn syrup, then stretch and fold repeatedly to incorporate air and create taffy or pulled sugar candies.

Evaluation Parameter:

Organoleptic Testing:

Taste Smell Texture Appearanc e
Physical Testing:
Hardness
Brittleness
Shape consistency Disintegration Test. Dissolution Testing:
Rate of dissolution in the mouth Consistency of dissolution across batches
Packaging Compatibility Testing:
Compatibility of packaging materials with the product
Packaging's ability to maintain freshness and prevent contamination
Hardness:
Refers to the resistance of the candy to deformation or breaking when pressure is applied. It determines the firmness of the candy and affects the overall eating experience.
Shape Consistency:
Ensures that the candies maintain uniformity in their shape and size, indicating precision in manufacturing and enhancing their visual appeal.
Texture:
Refers to the physical feel or mouth feel of the candy, including attributes such as chewiness, smoothness, or stickiness. Texture influences the overall sensory experience and enjoyment of the candy.
Smell:
Evaluates the aroma or fragrance of the candy, which is perceived through the olfactory senses. A pleasant smell enhances the overall sensory perception and can influence consumer preferences and satisfaction.

Result:

Sr No.	Parameter.	Observation.
1.	Colour	Green
2.	Taste	Sweet
3.	Size	2 cm
4.	Shape	Square
5.	Texture	Hard
6.	Dissoluation test	Medium rate
7.	Smell	Pleasant aroma attributed to the presence of fennel

Conclusion:

1] The product which will be developed can be safe and effective herbal travel candy that can effectively reduce motion sickness.
2] Create a candy formulation that is pleasant to chew has a natural taste and is free from any adverse effect.
3] Compare the effectiveness of herbal travel candy to over the counter medications for treating motion sickness.
4] Increase public awareness of the benefits of herbal travel candy for preventing motion sickness.
5] Identify the best combination of herbal extracts for preventing and treating motion sickness.
6] The project highlighted the limitation of using candy as a primary treatment for motion sickness
7] This project served as educational purpose.
8] The results indicated that overshadowing was not effective in reducing the severity of nausea and frequency of vomiting.
9] This product offers an alternative approach to managing these discomforts, potentially reducing reliance on traditional medications with their associated side effects.
10] The formulation of herbal travel candy for motion sickness and vomiting holds significant promise as a natural remedy.

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