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Research Article

Preparation and Evaluation of Nico Free Herbal Chewing Gums

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Abstract

Smoking cessation is challenging due to withdrawal symptoms. Herbal remedies can help with their stress-relieving and anti-inflammatory properties. This study aimed to create gummies with herbal extracts to support quitting smoking. Extracts from tragacanth prepared. These extracts was mixed with honey, cinnamon oil, *Vernonia cinerea* to form gummies. The gummies were then tested for quality and sensory properties. The gummies were greenish, uniform in shape and size, with a pleasant aroma and chewy texture. They had a slightly acidic pH, ensuring stability. The taste was balanced and sweet, with a strong cardamom flavor. The weight of individual gummies was consistent. The herbal gummies showed good physical and sensory qualities, making them a potential aid for smoking cessation. They can help reduce withdrawal symptoms and support overall well-being, offering a natural and enjoyable option to assist in quitting smoking.

Keywords: *Nicotine Free; Medicated Gummies; Herbal; Potential Aid*

Introduction

Nicotine addiction is complex, involving both physical and psychological elements. It's prevalent in individuals with a history of major depression, schizophrenia, or substance abuse, largely due to the rewarding effects of nicotine on the brain. Nicotine interacts with receptors in the brain, triggering the release of dopamine, which creates feelings of pleasure and reinforces smoking behavior. Over time, tolerance develops, leading to a need for more nicotine to achieve the same effects. Withdrawal symptoms, such as irritability and cravings, occur when nicotine levels drop. Treatment strategies include nicotine replacement therapy, medications like varenicline and bupropion, and behavioral counseling, with varying degrees of effectiveness. Alternative tobacco products like e-cigarettes are controversial and require further research into their role in cessation. Understanding these mechanisms is crucial for effective management of nicotine dependence and cessation.

Gummies

Gummies are a popular type of candy known for their chewy texture and diverse flavors. They come in various shapes and sizes, often resembling bears, worms, or fruits, and are enjoyed by both children and adults. The main components of gummies include sweeteners like sucrose, alternative sugars for specific textures, gelling agents such as gelatin or plant-based options like agar agar and pectin, acidulants

like citric acid and malic acid for flavor balance, food-grade colorants for vibrant appearances, and flavorings to enhance taste. Gummies are particularly favored due to their organic and chewy nature, making them a widely consumed confectionery product.

Advantages of gummies

Gummies have several advantages over pills, capsules, or liquids:

- Taste: They're often tastier.
- Easy consumption: They're simple to chew and swallow, suitable for all ages.
- Portability: They're individually wrapped or come in small packages, easy to carry.
- No water needed: Unlike pills, they don't require water for consumption.
- Mask unpleasant tastes: They can hide the taste of medications.
- Variety of flavors: They come in many flavors to suit preferences.
- Less intimidating: Their fun shapes and colors make them less scary for some people.

Herbal extract medicated gummies

Herbal extract medicated gummies blend the fun of gummy candies with the healing effects of herbal extracts. These gummies are infused with concentrated herbal extracts, derived from plants known for their medicinal properties. They offer an easy and enjoyable way to consume herbs, providing potential health benefits like immune support, relaxation, and sleep aid. They're popular for their convenience and tasty form, offering a delicious alternative for wellness support.

Materials and Methods

Powder of herbs (such as ashwagandha roots, ginger rhizome, cinnamon bark, licorice root, and tulsi, Solvent (hydroalcoholic mixture of ethanol and water, in a ratio of 30:70), Heating mantle, Beaker, Filter Paper, Funnel, Flavoring and Sweeting Agents.

Method of preparations of gummies

All ingredients were weight accurately as shown in formulation table 1. Crush the gum base in the mortar pestle. Add adequate volume of distilled water and properly stir in the porcelain dish and add honey was mixed. The dish was kept in a water bath and temperature was maintained at about 35-45. The drug and cinnamon oil were then added to the above mass. Corresponding amount of sugar, coloring agent and flavoring agent was added to the above mixture with continuous stirring up to 30 minutes. Finally the adequate amount of flavor was incorporated in the mixture. The mass was poured into the mould and was allowed to cool at room temperature. The gum pieces were removed (Figure 2).

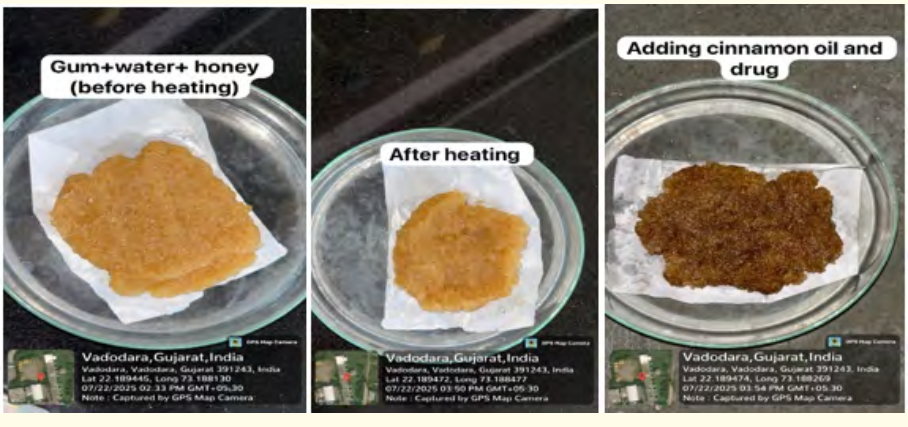

Figure 1: *Step by step formulation methods.*

Figure 2: *Formulation in 3 different batches.*

Formulation table (Figure 2)

SR.NO	Ingredients	Batch 1	Batch 2	Batch 3
1	Gum base	1 gm	1 gm	1 gm
2	Vernonia cinerea	0.015 gm	0.020 gm	0.025 gm
3	Cinnamon oil	0.1 gm	0.15 gm	0.2 gm
4	Honey	1 gm	1 gm	1 gm
5	Sugar	q.s	q.s	q.s
6	Black Cardamom	q.s	q.s	q.s

Table 1: *Formula of herbal chewing gum.*

Result and Discussion

Sr no.	Parameters	F1	F2	F3
1	Appearance	Greenish, consistence size and shape	Greenish, consistence size and shape	Greenish, consistence size and shape
2	Texture	Soft and consistent	Soft and consistent	Soft and consistent
3	Odour	Pleasant cinnamic odour	Pleasant cinnamic odour	Pleasant cinnamic odour
4	PH value	4.3	4.5	5
5	Taste	Sweet	Sweet	Sweet
6	Mouth feel	Soft, smooth and chewy	Soft, smooth and chewy	Soft, smooth and chewy
7	Weight variation (Average weight)	2.38 gm	2.4 gm	2.34 gm

Table 2: *Evaluation parameters for nico free herbal chewing gummies.*

Appearance

- The gummies exhibit a vibrant green color, visually appealing and consistent across all formulations.
- Uniformly shaped and sized, ensuring consistency in product presentation.
- No signs of discoloration or uneven distribution of coloring observed.

Texture

- Upon handling, the gummies feel soft and consistent in texture.
- During chewing, they maintain a pleasant chewiness without excessive stickiness.
- The texture is smooth, with no noticeable grittiness, providing an enjoyable mouthfeel.

Odour

A strong and inviting greenish aroma emanates from the gummies, consistent with the intended flavor profile.

pH

- The pH of the gummy formulations was assessed using pH paper.
- The average pH value across all formulations was visually estimated to be around 4.5, 5 and 4 indicating a slightly acidic environment conducive to stability and microbiological safety.

Taste

- Ratings for sweetness, cardamom flavor intensity, and overall taste were consistent across all formulations.
- The gummies achieved a balanced sweetness level, with a strong and appealing cardamom flavor profile contributing to a positive overall taste experience.

Mouthfeel

- A soft, chewy texture with a smooth mouthfeel, indicating a pleasant sensory experience during consumption.
- The gummies did not adhere excessively to the teeth, facilitating ease of consumption.

Weight variation

The weight of individual gummies within ± 10% of the average weight which is acceptable.

Conclusion

In conclusion, the formulation of medicated gummies for smoking cessation support involved a systematic approach encompassing the extraction of bioactive compounds from selected herbs, preparation of the gum base, incorporation of herbal extracts, and rigorous quality control testing. The use of ingredients ensured efficient extraction of key compounds from the herbs, contributing to the therapeutic efficacy of the gummies. Quality control tests confirmed the consistency and quality of the final product, meeting established criteria for appearance, texture, taste, and weight variation. Overall, the formulated gummies exhibit promising attributes conducive to supporting individuals in their efforts to quit smoking [1-15].

Disclosures

No conflicts of interest, financial or otherwise, are declared by the authors.

Author Contributions

ZP, VG, MP, ZD had done review of literature and experimental work. ZP, VG, MP drafted manuscript; ZP, VG, MP, ZD evaluated and analyse the data. ZP, VG, MP, ZD edited and revised manuscript; MP approved final version of manuscript.

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