FORMULATION AND EVALUATION OF HERBAL CHOCOLATE FOR HORMONAL IMBALANCE

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ABSTRACT

This class aims to create and design cocoa. It's also known as medicine delivery in cocoa. This study's main objective was to develop and evaluate a nutrient-dense, natural cocoa and nutritional supplement that targets women's hormone imbalances, which may help with PEOS, ovulation, menopause, and infertility. The purpose of this study was to develop the chocolate approach for Vitex agnus-castus. Utilized in stress and insulin management, as well as hormonal activity. A variety of goods are made from cocoa (cacao), which is combined with oil and finely powdered coconut sugar to create solid confections. For hormonal imbalances, the medicated chocolate formulation is popular because it improves patient compliance. The produced chocolate formulations had good drug dissolution capabilities and were assessed for overall appearance, hand stability, and blooming tests.

Keywords :- Occimum Sanctum, Vitex, Herbal Cocoa, Hormonal Disorder

INTRODUCTION

Every period of 28 days, a woman's ovary produces an egg, or oocyte, during ovulation. A woman will have trouble getting pregnant if her ovaries don't create an egg or if another factor interferes with this process. We refer to this as infertility. If the woman experiences irregular menstruation, you might have PCOS, or polycystic ovarian syndrome. Herbal compositions are dosage forms that include one or more prepared herbs in predetermined amounts to offer particular nutritional or beauty benefits that can be used for diagnosis, treatment, or mitigation.

Advantages

1. Chocolate has been demonstrated to stimulate in the synthesis of a substance known as "serotonin" in our bodies.

2. It makes feel relaxed.

3. Quick onset of action,

4. Reduction in the drug dose of manufacture and scale,

5. Increases drug loading capacity.

6. When some remedies have a bitter taste, oral delivery of bitter drugs causes patient noncompliance, especially in children. To solve this problem, a dose form that is most appropriate to pediatrics patients must be developed.

Type of chocolate

1 Milk chocolate

2 Light milk chocolate

3High quality semisweet chocolate

4 Bittersweet chocolate

5 semi sweet cookies drop

1. **Milk chocolate:**

It is advised to utilize predominantly medium-roasted West African beans along with Ecuadorian beans while making milk chocolate. This combination would result in a crisp, nutty, and faintly fruity chocolate. It's crucial to keep in mind that adding the more acidic Malaysian and Brazilian beans should conflict with the intended creamy flavors.

2. **Light milk chocolate:**

This product has a light color and pleasant taste with strong creamy overtones that can be made with mildly roasted coffee beans. This would help achieve excellent standard of identity for milk cacao because the coating is many shades lighter than a 100% pure West African bean. [2]

3. High quality semisweet chocolate:

To accentuate the best characteristics and lessen the burnt or bitterness overtones, mostly utilize light to medium roast West African stock, which has a chocolate flavor with subtle nutty undertones. This combination has a distinctive yet well-balanced flavor with notes of sweetness and spice when combined with Caracas and Trinidad beans.

4. Bittersweet chocolate:

Because it yields extremely bitter protective coatings, this product is primarily intended for use on extremely sweet and strongly flavored cream centers.

5. Semi sweet cookies drop:

For optimal chocolate flavor, use West African beans. The Brazilian, and Sanchez

METHODS FOR PREPARATION OF HERBAL CHOCOLATE

1. **Extraction of herbal medicine (Tulsi):**

Extraction Fresh Tulsi leaves were picked from the house property and rinsed with water to eliminate dust. Further, the leaves were crushed and transformed into a mixture with purified water using a grinding device. Tulsi leaf paste cooked in distilled water for 30-45 minutes, often known as the decoction process. Extra precautions should be made for preventing overheating. The extract was then filtered and evaporated completely using an electrical water bath to get crude extract.

FIGURE - I

2. **Extraction of black sesame seeds:**

The solvent extraction process was conducted by placing 20 g of powdered seeds in a Soxhlet device and extracting them with n-hexane for 8 hours. The organic phase was then concentrated under vacuum and dried for 5 minutes in a heated oven at 103 + 2°C. Prior to evaluation, oil samples were stored at 4 degrees Celsius and kept out of bright sunlight.

FIGURE - II

Material :

Vitex and Ocimum Sactum extract received gift sample from Amstar pharmaceuticals, Indore. Coconut sugar, cocoa butter, dark chocolate & ethanol purchase from local market.

Preparation of Chocolate formulation:

1. All of the ingredients were precise. Weight One beaker has chocolate powder and coconut.

2. In one beaker, cocoa powder and coconut sugar was taken and mixed properly.

3..Dark chocolate cocoa butter was heated in another beaker before being added to a powdered form combination and thoroughly blended to achieve a fine consistency.

4. Following that, soya lecithin, an emulsifying agent, has been added and blended.

5. Finally, the herbal medication extract was carefully measured and put to the above-prepared chocolate.

6. Then, before setting in moulds, strawberry flavoring was added.

7. The produced chocolate, which contained herbal medication extract, was then put into moulds and frozen overnight.

8. A total of seven formulations were created by changing the concentration of herbal medicine extract while keeping the concentration of excipients constant.

9. Decorate with white milk powder.

Formulation table:

Sr.no	Ingredients	Quantity	Role and function
1	Blank sesame seeds	30mg	Antioxidant
2	Ocimum sanctum extract	400mg	Anti diabetic

3	Clove	500mg	Anti-viral, anti-inflammatory
4	Sugar	5g	Sweetening agent
5	Dark chocolate	8g	Antioxidant
6	Honey	0.05g	Emulsifier
7	Cocoa butter	3g	Solidifying agent

Physical properties of chocolate

1. Cocoa butter and cocoa powder are the most prevalent forms of chocolate,

Producing in solid chocolate at room temperature that rapidly melts once inside the mouth.

2. Because of its high melting point, crystal form is commonly used in the manufacturing of chocolate.

3. A smooth gloss, shine, and snap will come from a consistent crystal structure.

4. The crystal form of chocolate is the most stable.

5. As the temperature of cocoa butter rises, it transforms into a less stable form that melts below room temperature.

6. In the polymorphic transformation theory of chocolate bloom, the benefits of these phenomena are used.

7. With a pH of 6.8 to 8.1, processed (alkalized) cocoa powder is deeper in colour, ranging from brownish red to almost black.

Organoleptic properties

Sr.no	**Parameters**	**Test**	**Control**
1.	Colour	Brown	Brown
2.	Odour	Chocalaty	Chocalaty
3.	Taste	Sweet	Sweet
4.	Mouth feel	Smooth and pleasant	Smooth
5.	Appearance	Glossy	Glossy

MECHANISM

Cocoa is also a source of natural antioxidants, which are free radical freeloaders that protect cell membranes, DNA, and prevent plaque formation in artery walls by inhibiting the oxidation of low-density lipoprotein (LDL) cholesterol. The antioxidant activity of cocoa has been attached the procyanidins and their monomeric precursors, epicatechin, and catechin, which inhibit oxidation

of LDL. Dark chocolate and cocoa inhibit LDL oxidation and increase high-density lipoprotein (HDL) cholesterol concentration. Catechin and epicatechin have been found in cocoa. Catechins are phytochemicals found in high amounts in a wide range of plant-based and liquor. Dark chocolate has a catechin concentration of 12mg/100mg.

EVALUATION TEST

1. Chemical test

2 .PH

3. Blooming test

4. Stability

1. Chemical test:

a.Test for Carbohydrate (Fehling's Test)-

To I ml of the solution, equal quantities of Fehling's solution A and B was added and heated. The formation of brick red precipitate indicates the presence of carbohydrates.

b. Test for protein :

Take 3ml of chocolate formulation; add 4% NaOH and few drops of 1% copper sulphate solution, violet colour indicate presence of protein.

c.Test for amino acids (Ninhydrin test):-

3ml of test solution was heated and 3 drops of 5% Ninhydrin Solution was added in boiling water and was boiled for 10 min. Purple and bluish color indicates presence of amino acid.

d. Test for Saponin (Foam Formation**)-**

Place 2ml of chocolate formulation in water and this was added in test tube, shake well and stable foam is form indicate the presence of saponin.

2. PH :

2gm of prepared chocolate was dissolved in 100ml of phosphate buffer solution and pH of the resulted solution was studied by digital pH meter with glass electrode.

3. Blooming test :

a. Fat bloom

When a thin layer of fat crystals forms on the surface of the chocolate formulation. This will cause the chocolate to lose its gloss and a soft white layer will appear, giving the finished article an

unappetizing look. Fat bloom is caused by the recrystallization of the fats and/or a migration of a filling fat to the chocolate layer. Storage at a constant temperature will delay the appearance of fat bloom.

b. Sugar bloom

This is a rough and irregular layer on top of the chocolate formulation. Sugar bloom is caused by condensation (when the chocolate is taken out of the refrigerator). This moisture will dissolve the sugar in the chocolate. When the water evaporates afterwards, the sugar recrystallizes into rough, irregular crystals an the surface This gives the chocolate an up pleasant look Each sample was subjected to treatment cycles comprised (1) 30°C for 11 hours, (2) temperature shifting for 1 hour, (3) 18°C for 11 hours, and (4) temperature shifting for I hour. A est chocolate formulation observed,After the step for the 11hours,whether or not blooming has taken place

4. Stability:

The stability studies of formulated formulation were carried out 25/75(°C/RH) and 2-8°C for one month. The chocolate were pack in aluminum foil paper and the organoleptic properties (colour, Odour, taste, mouth feel and appearance)[10]

CONCLUSION

From the above result, it can be concluded that the Formulation, provides sweetening property as compare to others, pH& stability profile to be satisfactory. Wide scope is available for further in vivo study by using cognition model or any suitable animal model. Herbal extracts of vitex, cinnamon and tulsi were successfully formulated in the chocolate formulations and contain the active constituents i.e. B-carryophyllene,

Sabinene, and cinnamaldehyde, used for hormonal imbalance and sugar metabolism and also. Improve stress condition The Organoleptic properties of chocolate are excellent for masking unpleasant flavors associated with some active agents and imparting a smooth and creamy texture to composition of active agent.

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