

# Preparation and Evaluation of Herbal Chocolate

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**Abstract:** *The chocolate is most loving food of children where as medicine is hating substance. So, the objective of this study is to fabricate and design chocolate. The essential target of this study was to formulate and evaluate nutritious chocolate and nutritional supplement containing antioxidant and anti-cancer property. Chocolate is a range of products derived from cocoa (cocoa) mixed with fat and finely powered coconut sugar to produce a solid confectionery. Ocimum sanctum, Tulsi is the herbal drug which having several medicinal properties, like antitussive property, antioxidant property, from the prevention of heart disease and also for the treatment of skin . Black sesame was used to improved blood pressure and act as a anti aging agent. Thus, we have to formulate the chocolate with aqueous extract of black sesame and Tulsi that gives antitussive and anti-cancer activity. Chocolate is a sophisticated and infinitely adaptable food that can be mixed and matched to generate a variety of taste and texture sensation. Hence worth, in the present examination, endeavor was to make to get ready chocolate plan of black sesame and Tulsi which enhances the patients compliances and worthiness.*

**Keywords:** Black sesame seed, Antitussive, ocimum sanctum (Tulsi)

## I. INTRODUCTION

Chocolate is a adaptable food that can be combined to create completely different taste and texture sensation. It is best drug delivery system specifically for children and youngsters. There are five basic human taste qualities i.e. sweet, bitter, sour, salty, savory. Sweet taste is one of the most pleasurable taste. The goal of the sweet taste is to detect the highly calorific saccharides for injection[1]. Herbal formulation means a dosage form consisting of one or more herb or proceed herbs in specified quantities to provide specific nutritional, cosmetic benefits meant for use to diagnose, treat, mitigate[2-6]. In many ways, chocolate is an excellent vehicle for delivering active chemicals. The aim of the present study to prepare study to prepare herbal chocolate for antioxidant, anti-cancer and anti-aging.



## II. MATERIAL

Cinnamon, Nigella sativa, and Ocimum Sactum extract ethanol, coconut sugar, cocoa butter, dark chocolate

### Method:-

#### • Extraction of herbal drug (Tulsi):

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. [7-9]



#### • Extraction of Black sesame seed:

Solvent-extraction was performed using 20 g of ground seeds placed in a Soxhlet apparatus and extracted with n-hexane for 8 h. The organic phase was then concentrated under vacuum and dried for 5 min in an oven at  $103 \pm 2$  °C. Oil samples were stored at 4 °C and protected from sunlight prior analysis.



**Chocolate formulation preparation:**

All of the materials were precisely weighed. Sugar was placed in one of the beakers. Dark chocolate cocoa butter was heated in a separate beaker, then added to a powder combination and thoroughly combined to achieve a fine consistency. After that, an emulsifier, honey, was added and blended. Finally, the herbal medication extract i.e. crude extract of Tulsi, and black sesame seed was precisely measured and put to the previously made chocolate. Before entering into the moulds, vanilla was added as a flavouring ingredient. The prepared chocolate containing herbal medication extract was then put into moulds and allowed to set overnight in the freezer. and also prepared the control group i.e. prepare chocolate formulation without addition of herbal medicinal extract for comparative study.



**Formulation Table:-**

Sr No.	Ingredients	Quantity	Role/Function
1.	Black sesame seeds	30 mg	Improve blood pressure, antioxidant
2.	Ocimum Sanctum extract	400 mg	Antitussive, Antipyretic, Antidiabetic
3.	Clove	500 mg	Anti-viral, anti inflammatory
4.	Sugar	5 g	Sweetening agent
5.	Dark Chocolate	8 g	Antioxidant
6.	Honey	0.05 g	Emulsifier
7.	Cocoa Butter	3 g	Solidifying agent
8.	Vanilla flavour	0.005g	Flavouring agent

**Organoleptic Properties:**

Parameters	Test	Control
Colour	Brown	Brown
Odour	Chocolaty	Chocolaty
Taste	Sweet	Sweet
Mouth feel	Smooth and pleasant	Smooth
Appearance	Glossy	Glossy

**Evaluation Test:-**

**1) Chemical Test:**

1) Test for Carbohydrate (Fehling's Test):-

To 1 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.

2) Test for Protein (Biuret Test/General Test)-

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

3) 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.

4) Test for Saponins (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 saponins.

**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**

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.

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 on the surface. This gives the chocolate an unpleasant 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 1 hour. A test chocolate formulation observed, after the step at 18°C for 11 hours, 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 appearances) were evaluated for assessing the stability of the prepared formulation

**Uses of herbal chocolate formulation:-**

Herbal formulations combine one or more herbal preparations with an active ingredient, herbal substance, herbal preparation, or herbal substance. Many civilizations have utilised cocoa and chocolate products as medicine for ages because of their health benefits. Flavonoids, which function as antioxidants and help lower blood pressure and balance various hormones in the body, are responsible for many of these advantages. Dark chocolate has a higher concentration

of antioxidants than milk or white chocolate, which do not have the same health benefits. Chocolate is a roasted and ground cacao seed preparation that comes in the shape of a liquid, paste, or block and can be used as a flavouring element in other meals.

White chocolate, milk chocolate, and dark chocolate are the three basic varieties of chocolate. It's largely made of cocoa butter, and it's good for heart disease, cognition, stress, and mood. The energy-boosting properties of chocolate. Tulsi, or Ocimum sanctum, has been utilised in Ayurveda for hundreds of years for its various Healing Power, Kidney Stone, Basil has a strengthening impact on the kidneys. Stress: Basil leaves are thought to provide anti-stress properties. Recent studies have revealed that the leaves provide significant stress protection. They can also help with headaches, diabetes, and stress. The plant has purifying and antioxidant characteristics that help to revitalise the skin. It aids in the removal of toxins that cause pimples, hence assisting in the treatment of acne and reducing the occurrence of outbreaks. Oral infections can be effectively treated with the plant leaves. It has also been discovered to have anti-inflammatory qualities in people with periodontal disease.

**III. RESULT**

**1) Chemical test**

Name of test	Test group	Control group
1.Carbohydrate	+	+
2.Protein	+	+
3.Amino acid	+	-
4.Saponin	-	-



**2)pH-** The pH of chocolate formulation was done by using pH meter and the result was found to be pH=6.4

**3)Blooming test -**

Test	Result
Fat bloom	No
Sugar bloom	No



4) **Stability** :Test group selected for stability study.

Parameters	Storage condition	At the time of preparation	After the one month
Colour, Odour, Taste, Mouth feel, Appearance	2-8 °c	Brown, chocolaty, slightly bitter, smooth ,glossy	No change

**Biological Activity :**

1) **Antifungal Activity:**

**Method:** Tube dilution method

**Procedure:** The chemical agent is incorporated into nutrient broth or agar medium and inoculated with the test microorganisms. These tubes are incubated at 30 to 35°C for 2 to 3 days and then the results in the form of turbidity or colonies are observed. The results are recorded and the activity of the given disinfectant is compared as shown in the fig.



#### IV. CONCLUSION

In the present study, development of Herbal Chocolate having antioxidant 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. 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.

#### V. SUMMARY

As an outcome of the previous, the sweetening property, pH, and stability profile are all satisfactory. Further in vivo research can be done using a cognitive model or any other relevant animal model. Herbal extracts of Black sesame seed, and tulsi were successfully formed in chocolate formulations. Chocolate's organoleptic qualities are ideal for disguising disagreeable flavours associated with some active agents and providing a smooth and creamy texture to active agent compositions. As a result, chocolate formulations provide an appealing manner of administering medications via oral administration. The drug extracts used in the dose range are safe to consume and can be ingested without difficulty.

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