Formulation and Evolution of Brain Boosting Herbal Dark Chocolate with Combination of Brahmi and Pumkin Seeds Extracts

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Abstract: The objective of this study is to design herbal chocolate containing extract of pumpkin seeds and brahmi. The essential target of this study was to formulate and evaluate brain busting herbal chocolate that will have the work on memory enhancing. Chocolate is a range of product derived from cocoa powder mixed with fat and finally sugar powder to produce a solid semifluid. The herbal chocolate formulation is widely used for brain boosting or increase memory of human. Dark chocolate is majorly beneficial in cardiovascular disease and other health benefits of Dark chocolate includes as antioxidant, improvement in endothelial function, vascular function, insulin sensitivity etc. The prepared herbal chocolate formulation were evaluate for general appearance, pH, stability, blooming tests, also show good release of herbal drugs, drug content determination and physical stability.

Keywords: Herbal chocolate, seeds of pumpkin, extract of brahmi powder, blooming test, memory enhancing, cocoa butter.

1. Introduction

Recollections are vital to our uniqueness. What each of us recalls is not quite the same as what others recollect, even of circumstances we have been in together. Yet, in our unmistakable courses, every one of us recollects occasions, truths, enthusiastic sentiments and aptitudes - some for a brief timeframe, others for a lifetime. Memory is the capacity of individual to record tangible jolts, occasions; data, and so forth hold them over short or drawn out stretches of time and review the same at later date when required. Poor memory, lower maintenance and moderate review are normal issues in today's distressing and focused world. While we all gripe about our recollections, they are in the most part really great, just beginning to come up short in seniority or certain neurological sicknesses. Age, stress, feelings are conditions that might prompt memory misfortune, amnesia, uneasiness, hypertension, dementia, or to more dismal dangers such as schizophrenia and Alzheimer's ailment (AD). Albeit different manufactured medications for memory improvement are accessible, reactions connected with them make their utilization restricted. In the late years, there has been an ascent in light of a legitimate concern for academic group and pharmaceutical research facilities to investigate the restorative advantages of herbs to enhance memory. Considering generally acknowledgment of chocolate from peadiatric to gediatric group the essential target of this study was chosen. Chocolates additionally indicates medical advantages including, lessening in hypertension, change in blood stream to cerebrum, counteract cell harm and enhances glucose levels, it likewise diminishes danger of heart assault, raises HDL cholesterol and brings down LDL cholesterol. Along these lines the present exploration article concentrates on plan and assessment of the nutritious chocolate containing bramhi and pumpkin seeds tonics improving impact with no reactions.

2. Materials and Method

2.1 Materials

Pumpkin seeds and brahmi powder, cocoa powder, aspartame sugar, cocoa butter, strawberry, soya lecithin and ethanol are purchased from research local market.

2.2 Method

1) Extraction of herbal drugs:

The extraction was done by cold maceration process. First, the powdered plant material of pumkin seed sand bramhi were macerated with mixture of Alcohol and Water (70: 30) in RBF (round bottom flask) for 24 hours with occasional shaking. After 24 hours, the solvents were subjected filtration and then extracts of pumpkin seeds and bramhi were collected.

2) Preparation of Chocolate formulation:

- a) All the ingredients were weight accurately
- b) In one beaker, cocoa powder and sugar was taken and mixed properly.
- c) In another beaker, cocoa butter has melted and this melted buyer was added in a powder mixture and mixed properly to get fine consistency.

Contents	F1	F2	F3	F4	F5	F6
Cocoa butter	2.8gm	3.28gm	3.76gm	4.24gm	4.72gm	5.2gm
Sugar	3.6gm	3.6gm	3.6gm	3.6gm	3.6gm	3.6gm
Soya lecithin	0.05gm	0.07gm	0.09gm	0.11gm	0.13gm	0.15gm
Strawberry flavour	0.05gm	0.05gm	0.05gm	0.05gm	0.05gm	0.05gm
Dark chocolate	10gm	9.5gm	9gm	8.5gm	8gm	7.5gm

Table 1: Formulation table for composition of chocolate

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[Pumkin seeds	500mg	500mg	500mg	500mg	500mg	500mg
ĺ	Brahmi	500mg	500mg	500mg	500mg	500mg	500mg
ĺ	Total	17.5gm	17.5gm	17.5gm	17.5gm	17.5gm	17.5gm

- d) After that soya lecithin as an emulsifier was added and mixed.
- e) Finally the herbal drug (pumpkin seeds & Brahmi) extract was measured accurately and added in above prepared chocolate.
- f) Then strawberry as a flavouring agent was added before going to set in moulds.
- g) Then the prepared chocolate containing herbal drug extract was poured in moulds and kept in freeze to set overnight.
- h) Total 6 formulations were prepared by varying the concentration of herbal drug extract used, while the concentration of excipients was kept constant. The compositions of all the 6 formulations were shown in table no 1.



Figure 1: Herbal dark chocolate

3) Evaluation of herbal chocolate:

Organoleptic properties: These are Sensory properties. Those that can be detected by the sense organs. For foods, it is used particularly of the combination of taste, texture, and astringency and aroma (perceived in the nose).

Table 2:	Organole	otic eva	luation	parameter
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Parameter	F1	F2	F3	F4	F5	F6
Colour	Light brown	Brawn	brawn	Brawn	Dark brawn	Dark brawn
Odour	Chocolaty	Chocolaty	Chocolaty	Chocolaty	Chocolaty	Chocolaty
Taste	Slightly sweet	Slightly sweet, acrid	Slightly sweet, bitter	Slightly sweet, acrid	Slightly sweet	Slightly sweet
Mouth feel	Smooth & pleasant	Smooth & pleasant	Smooth & pleasant	Smooth & pleasant	Smooth & pleasant	Smooth& pleasant
Appearance	Glossy	Dull	Dull	Glossy	Dull	Glossy

4) pH of chocolate formulation

 Table 3: pH of chocolate formulation

Formulation code	F1	F2	F3	F4	F5	F6
Ph	6.5	6.8	6.8	6.9	7.1	7.1

- **Blooming test:** Bloom is a test to measure the strength of a chocolate. The test determines the weight in grams needed by a specified plunger to depress the surface of chocolate without breaking it at a specified temperature. There is no blooming was observed in any formulation.
- **Stability Studies:** The formulation and preparation of any product is incomplete without proper stability studies of the prepared product. A general method for predicting the stability of any product is accelerated stability studies, where the product is subjected to elevated temperatures as per the ICH guidelines. A short term accelerated stability study was carried out for the period of 3 months for the prepared formulation.

Table	4:	Stability	Parameter
		/	

Parameter	Storage condition	Storage condition	At the time of preparation	After the one month	After
Colour, Odour, Taste, Mouth feel, Appereance	30°C	2 - 8 °C	Braun, characteristic, chocolaty, smooth, glossy.	No change	No change

3. Result and discussion

The various batches were prepared F1 to F6 and F6is the best formulation according to colour odour test and organoleptic properties this study was carried out to determine the physicochemical properties of chocolate based on colour, hardness, glossiness and fat bloom. The sensory evaluation of the chocolate was analysed at immediately after processing and at three months storage.

4. Conclusion

From the above result, it can be concluded that the F6 batch as an optimized batch, provides sweetening property as compare to others, pH & stability profile to be satisfactory. Herbal extracts of brahmi powder and pumpkin seeds were successfully formulated in the chocolate formulations and contain the active constituents i.e. bacoside - A, bacoside -B, alkaloids, glycosides, flavonoids, saponins and pumpkin seeds are rich many micronutrients that are important for brain function, including copper, iron, magnesium and zinc, used for brain boosting and sugar metabolism and also improve stress condition. The flavonoids in chocolate may help protect the brain. Studies have suggested that eating chocolate, especially dark chocolate, could boost both memory and mood. The Organoleptic properties of chocolate are excellent for masking unpleasant flavour's associated with some active agents and imparting a smooth and creamy texture to compositions of active agents. Thus chocolate formulation provides a palatable means for delivering medicaments through oral delivery. The drugs extracts, which are used in the dose range are safe consumption and can be swallowed without any risk of side effects.

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