

Formulation and Evaluation of Herbal Chocolates by using *Withania Somnifera* (Ashwagandha) and *Asparagus Racemosus* (Shatavari).

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Abstract:- The chocolate is most loving food among the people whereas the medicine is hating substance. So, objective of present study was to formulate the chocolate that contain drug i.e., medicated chocolate to prevent various kind of disorder. *Withania somnifera* (Ashwagandha) is an herbal drug which having several medicinal properties like Anti stress, anti-inflammatory effect and nervous system effect and *Asparagus racemosus* (Shatavari) is the herbal drug which having medicinal properties, like prevents miscarriage, increases lactation, removes the infertility, and regulates the menstruation. Thus, we must formulate the chocolate with powder of Ashwagandha and Shatavari that gives the desired pharmacological effect. Further, prepared medicated chocolate is evaluated for general appearance, dimension, hardness, blooming test.

Keywords:- Herbal chocolate, *Withania somnifera* (Ashwagandha), *Asparagus racemosus* (Shatavari), pharmacological effects.

I. INTRODUCTION

A. General Introduction To Chocolate Drug Delivery System

Perhaps of the most famous food all around the world is chocolate and it has profoundly nutritious energy, quick digestion, and great absorbability. When consumed as a component of a reasonable and changed diet, chocolate can be both a wellspring of supplements too as joy, and can considered as be important for an invigorating, healthy eating regimen. Cured chocolate detailing is generally utilized for organization and it builds the patient's longing to consume the medicine. Sedated chocolate is ready by utilizing chocolate base and medication is integrated to arranged chocolate base. The sedated chocolate can be assessed for its appearance, dampness content, thickness, blossoming test. Cured chocolate is ready by utilizing chocolate base and the medication is integrated into arranged chocolate base. As the medication is consolidated inside the chocolate and the medication is let out of the chocolate, it is called as Chocolate medication drug delivery system.

B. Introduction To Drug Introduction To *Withania Somnifera* (Ashwagandha)

Withania somnifera (Ashwagandha) is a profoundly respected spice in the Indian Ayurvedic clinical framework (tonic). It is utilized for various infirmities, however most

outstandingly as a nervine tonic. Ashwagandha comprises of dried mature underlying foundations of *Withania somnifera* Donal. (Fam. Solanaceae), a perpetual bush, tracked down in squander land, developed field and open grounds all through India.

➤ *Chemical constituents:*

Withania somnifera contain of 35 synthetic substances, withanine is the super constituent present. It contains alkaloids and withanolides, for example, somniferine, somnine, somniferinine, withananine, pseudo-withanine, tropine, pseudo-tropine and withaferin A.

➤ *Therapeutic effect*

• *Antistress Effect*

Ashwagandha is customarily utilized as an adaptogen which is useful in lessening pressure and uneasiness. Ashwagandha seems to assist with controlling go between of stress, including heat shock proteins (Hsp70), cortisol, and stress-enacted c-Jun N-terminal protein kinase (JNK-1) (4). Anti-inflammatory Properties.

Ashwagandha root extricate applies calming and anti-inflammatory impacts in HaCaT cells by repressing the MAPK/NF κB pathways and by controlling cytokines. Debris WEX essentially hindered mRNA articulation of provocative cytokines, including interleukin (IL) 8, IL 6, cancer putrefaction factor (TNF α), IL 1β and IL 12, and advanced the mRNA articulation of the calming cytokine changing development factor (TGF) β1 in HaCaT cells.

• *Antitumor Properties*

WS and its tamanolide's been displayed to have remedial potential against disease, some of them have additionally been displayed to have malignant growth preventive properties. The disease battling properties have been seen with root extricates, yet in addition with leaf separates which is a generally underused a piece of the Ashwagandha plant.

• *Immunomodulatory*

The ashwagandha root separate contained withanolides, for example, withaferin A, withanolide An and withanolide sulfoxide, which have solid immunomodulatory effect.

- *Antioxidant Effect*

Ashwagandha (*Withania somnifera*) water extract is a strong cancer prevention agent and has anticancer properties in HepG2 cells

- *Nervous System Effects*

It is utilized for different sorts of illness processes and exceptionally as a nervine tonic. It has a Cognition Promoting Effect and is helpful in youngsters with memory deficiency and in advanced age individual loss of memory. It is helpful in neurodegenerative illnesses like Parkinson's, Huntington's, and Alzheimer's sicknesses. It has GABA mimetic impact and was displayed to advance development of dendrites. It makes anxiolytic difference and further develops energy levels and mitochondrial wellbeing.

- *Effects on the Cardiopulmonary System*

Ashwagandha-arranged as Rasayanas, and portrayed to advance wellbeing and life span and Arjuna basically for heart infirmities. coronary conduit illness, cardiovascular breakdown, hypercholesterolemia, anginal torment and can be considered as a helpful medication for coronary corridor infection, hypertension, and ischemic cardiomyopathy. Ashwagandha demonstrate helpful to improve cardiovascular perseverance and bringing down systolic circulatory strain.

C. Introduction To *Asparagus Racemosus* (Shatavari)

Asparagus racemosus is a native restorative plant of the family Liliaceae is significant for its saponin content the antecedent of numerous pharmacologically dynamic steroids. It has cancer prevention agent action, hostile to abortifacient movement Shatvarin Antioxytoxic (shatavarin4), convulsive to uterus, hypoglycemic, hypertensive action, anticoagulant action, antiviral action, anticancer, antidiarrhetic action.

- *Chemical Constituents*

Steroidal saponins, known as savarins. Savarins I to VI are available. Savarino I is the significant glycoside with 3-glucose and rhamnose moieties connected to sarsapogenin. Oligospirostanoside alluded to as Immunoside. Polycyclic alkaloid-Aspargamine A, an enclosure type pyrrolizidine alkaloid. Isoflavones-8-methoxy-5, 6, 4-trihydroxy isoflavone-7-O-beta-D-glucopyranoside. Cyclic hydrocarbon-racemosol, dihydrophenantherene. Furan compound-Racemofuran. Carbs Polysaccharides, adhesive. Flavanoids-Glycosides of quercetin, rutin and hyperoside are available in blossom and natural products, Sterols-Roots additionally contain sitosterol, 4, 6-dihydroxy 2-O (- 2-hydroxy isobutyl) benzaldehyde and undecanyl cetanoate

- *Therapeutic Effects*

- *Galactagogue effect*

The root extract of *A. racemosus* is used to increase milk secretion during lactation.

- *Antisecretory and antiulcer activity*

Shatavari was found to remember the greater part of the side effects in larger part of the patients. The ulcer recuperating impact of the medication was credited to a direct to an immediate mending impact, conceivable by potentiating inherent defensive element as it has neither antisecretory movement nor stomach settling agent properties, by reinforcing mucosal opposition, drawing out the life expectancy of mucosal cells, expanding emission and consistency of mucous and lessening H⁺ particle back dissemination

- *Antitussive effect*

Methanolic extract of roots showed huge antitussive action. Shatavari diminishes the discharge of cough.

- *Antiprotozoal activity*

A fluid arrangement of the unrefined alcoholic concentrate of the roots displayed an inhibitory impact of the development of *Eintamoeba histolytica*.

- *Effect on uterus*

Asparagus racemosus is notable for its consequences for the female conceptive framework and utilized in all female related issues like PMS. It likewise upholds further tissue and fabricates blood thus it assists with eliminating fruitlessness, set up the belly for origination, forestalls unsuccessful labor and goes about as a post pregnancy tonic where it assists with expanding lactation and standardize the uterus, prolapse of Uterus and the adjusting regenerative chemicals level.

- *Toxic effect*

A. racemosus has been described as totally ok for long haul use, in any event, during pregnancy and lactation. Foundational organization of higher portions of 1 concentrates did not deliver just abnormality.

- *Other therapeutic effect: -*

- ✓ Uterine tonic
- ✓ Used in PMS
- ✓ Removes infertility by supporting deeper tissue and builds blood
- ✓ Prevents Miscarriage
- ✓ Increases lactation
- ✓ Regulates menstruation
- ✓ Improve conception rate
- ✓ Balance reproductive hormones

II. MATERIALS AND METHODS

A. Materials:

Sr. no	Ingredients
1	Dark chocolate
2	White compound
3	Ashwagandha
4	Shatavari
5	Sugar

Table (1): - List of ingredients

B. Method of preparation:

A. Method of preparation of chocolate by using Ashwagandha

Content	F1	F2	F3	F4	F5
Dark chocolate	3gm	3gm	3.5gm	3.5gm	3.5gm
White chocolate	3.5gm	3.5gm	3gm	3gm	3gm
Sugar	2gm	1gm	2gm	2gm	3gm
Ashwagandha	0.45gm	0.5gm	0.55gm	0.6gm	0.65gm

Table (2): - Composition formulation of Ashwagandha

Water bath was set in such a way that water become hot having temperature about 50°C. Then chocolate base was melted in porcelain dish till it become free flowing. On another side, sugar syrup was prepared by taking sugar in appropriate quantity with distilled water in beaker on water bath. Then add prepared sugar syrup in required quantity into

melted chocolate base. After above step, appropriate quantity of drug extract i.e., crude extract of Ashwagandha 450mg, 500mg, 550mg, 600mg, 650mg were added to it and stirred continuously. Then whole mass of chocolate base was poured in a silicon chocolate mould and refrigerated till it become solid form approximate 3-6Hrs.



Fig (1): - Mixture of chocolate compound

B. Method of Preparation of chocolate

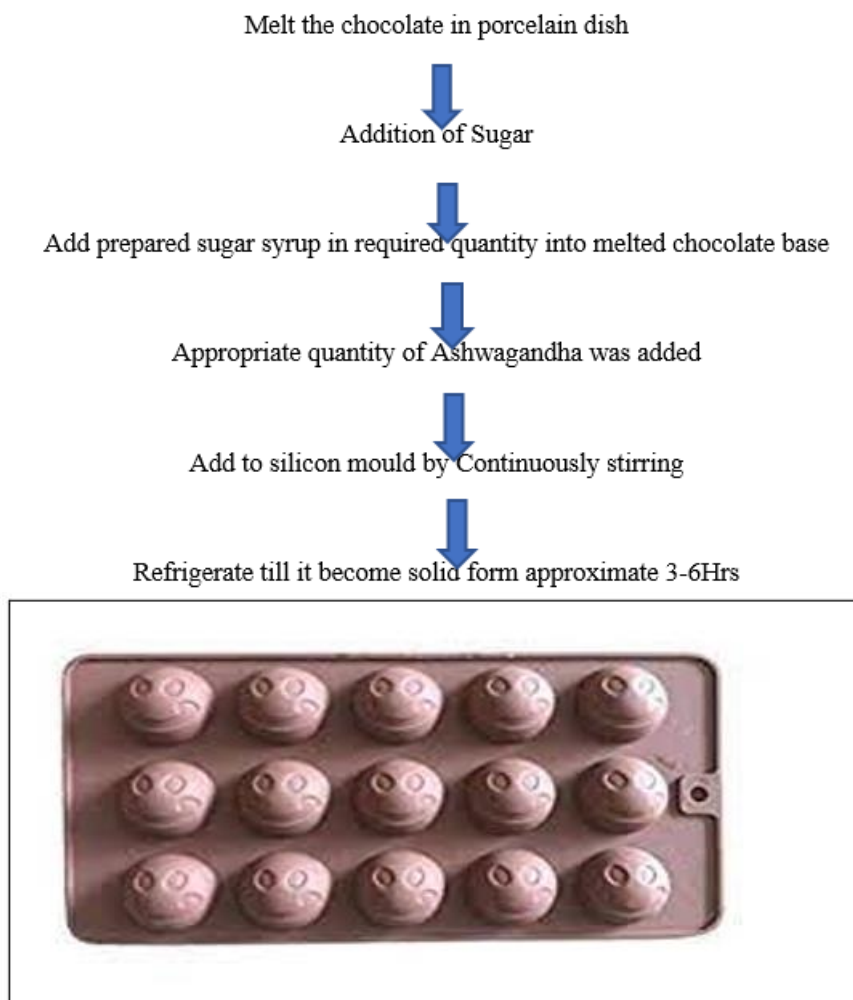


Fig (2): - Ashwagandha chocolate mould

C. Method of preparation of chocolate by using *Asparagus racemosus* (Shatavari)

Content	F1	F2	F3	F4	F5
Dark chocolate	3gm	3.5gm	3gm	3gm	3.5gm
White chocolate	3.5gm	3gm	3.5gm	3.5gm	3gm
Sugar	2gm	1gm	2gm	2gm	3gm
Shatavari	0.45gm	0.5gm	0.55gm	0.6gm	0.65gm

Table (3): - Composition formulation of Shatavari

Water bath was set in such a way that water become hot having temperature about 50°C. Then chocolate base was melted in porcelain dish till it become free flowing. On another side, sugar syrup was prepared by taking sugar in appropriate quantity with distilled water in beaker on water bath. Then add prepared sugar syrup in required quantity into

melted chocolate base. After above step, appropriate quantity of drug extract i.e., crude extract of Chiavari 450mg, 500mg, 550mg, 600mg, 650mg were added to it and stirred continuously. Then whole mass of chocolate base was poured in a silicon chocolate mould and refrigerated till it become solid form approximate 3-6Hrs.

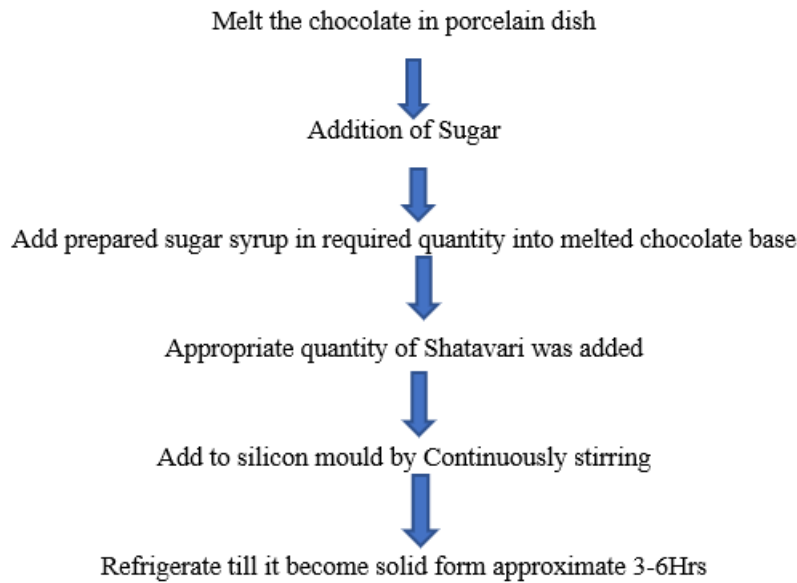
D. Method of Preparation of Chocolate

Fig (3): - Shatavari chocolate mould

III. EVALUATION

A. General Appearance

Colour
Odour
Taste
Texture

B. Dimensions

It was measured by Vernier's callipers.

C. Hardness Test

Hardness of chocolate was measured by Monsanto Hardness Tester

D. Blooming test

Fat Bloom - At the point when the slight layer of fat precious stones structure on the outer layer of chocolate plan. This will make the chocolate lose its sparkle and a delicate white layer will show up, giving the completed article an unappetizing look. Fat blossom is brought about by the recrystallization of fat or potentially a movement of a filling fat to the chocolate layer. Capacity at a consistent temperature will defer the presence of fat sprout.

Sugar Bloom - This is rough and irregular layer on top of chocolate formulation. This is caused by condensation (when chocolate is taken out of the refrigerator). This moisture will dissolve the sugar in the chocolate. When the water evaporates, sugar recrystallizes into rough, irregular crystals on surface. This results into unpleasant look.

IV. RESULT AND DISCUSSION

A. Result for Ashwagandha: -

➤ Organoleptic evaluation: -

Sr.no	Parameters	Observation
1	Colour	Dark Brown
2	Odour	Chocolate with no brunt, no smoky smell
3	Taste	sweet
4	Texture	Smooth and even

Table (4): - Organoleptic evaluation parameter for Ashwagandha

➤ Dimensions: -

Height: - 1.3 cm

Diameter: - 2.7 cm

➤ Hardness test: -

Content (Ashwagandha)	Result (Hardness)
F1	10.2 ±2 kg/cm ²
F2	10.45 ±2 kg/cm ²
F3	10.6 ±2 kg/cm ²
F4	10.5 ±2 kg/cm ²
F5	10.45 ±2 kg/cm ²

Table (5): - Hardness Parameter for Ashwagandha

➤ Blooming test: -

Test	Result
Fat Bloom	No
Sugar Bloom	No

Table (6): - Blooming test parameter for Ashwagandha

B. Results For Shatavari

➤ Organoleptic evaluation: -

Sr.no	Parameters	Observation
1	Colour	Dark Brown
2	Odour	Chocolate with no brunt, no smoky smell
3	Taste	sweet
4	Texture	Smooth and even

Table (7): - Organoleptic evaluation parameter for Shatavari

➤ Dimensions

Height: - 1.3 cm

Diameter: - 2.8 cm

➤ *Hardness test:* -

Content (Shatavari)	Result (hardness)
F1	13.6 ±2 kg/cm ²
F2	13.8 ±2 kg/cm ²
F3	13.6 ±2 kg/cm ²
F4	13.5 ± 2 kg/cm ²
F5	13.65 ±2 kg/cm ²

Table (8): - Hardness Parameter for Shatavari

➤ *Blooming test*

Test	Result
Fat Bloom	No
Sugar Bloom	No

Table (9): - Blooming test parameter for Shatavari

V. CONCLUSION

In the current review advancement of natural chocolate by utilizing Ashwagandha and Shatavari was done. By utilizing arranged powder of Ashwagandha and Shatavari home grown chocolates was ready and assessed for outward presentation, aspect, hardness, blossoming test.

From above concentrate on we presumed that the chocolates give smooth and velvety surface to the detailing and are great for covering the horrendous taste related with the medications and the medication which are utilized in the portion range are protected and can be taken with no gamble of aftereffects.

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