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DEVELOPMENT OF CHOCOLATE BY USING ASHWAGANDHA & SHATAVARI POWDER

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Abstract **- People love chocolate more than any other food, yet they detest medications. Therefore, the goal of this study was to create medicated chocolate, or chocolate that contains drugs, in order to prevent different types of disorders. Asparagus racemosus (Shatavari) is an herbal remedy that has medicinal qualities such as preventing miscarriage, increasing lactation, eliminating infertility, and regulating menstruation. Withania somnifera (Ashwagandha) is an herb that has several medicinal properties, including anti-stress, anti-inflammatory, and nervous system effects. Dates are a healthy fruit that may have advantages. Dates have been shown in studies to promote cardiac, digestive, and cognitive health. Antioxidants found in dates may help prevent illness and facilitate natural labor. As a result, we need to create the chocolate that has the appropriate pharmacological action using powdered ashwagandha, shatavari and dates. Additionally, the produced medicated chocolate is assessed for dimension, hardness, blooming test, and overall look. Chocolate with added herbs can aid with memory retention for all kinds of knowledge. Chocolate is a manufactured food that has the ability to produce wildly diverse tastes and textures. In today's concentrated and upsetting society, moderate review, poorer maintenance, and poor recall are common problems. The primary problem facing everyone these days, even youngsters and the elderly, is poor memory. Chocolate is an anhydrous media that is resistant to the hydrolysis of water-sensitive active agents and the development of microorganisms. Rich in minerals, dark chocolate also has a respectable quantity of soluble fiber. Herbs are the primary active elements in herbal boosting chocolate.**

Keywords**: -** ***Withania somnifera, Asparagus racemosus, Dates, Herbs, Dark chocolate.***

I. INTRODUCTION

A dosage form containing one or more herbal drugs, or processed herbal drugs, in a specific amount to provide specific nutritional, cosmetic, and/or health benefits planned for use to check, treat, mitigate, or alter bodily functions is known as a herbal formulation. Chocolate can be a source of joy and nutrients when it is included in a sensible and balanced diet. It is also thought to be essential for a healthy, wholesome diet. Usually used for organization, cured chocolate detailing increases the patient's desire to take the medication. Chocolate base is used to prepare sedative chocolate, and medicine is mixed into the chocolate base. Herbal memory and application are essential to both physical and mental well-being. Herbal chocolate is entirely devoid of chemicals, unlike synthetic chocolate that is manufactured with chemicals. Chocolate contains both antioxidant and antimicrobial properties. We all complain about our memories, which are generally excellent but are starting to fade due to aging or specific neurological conditions. Herbal chocolate that boosts brain function can readily function in human neurons.

II. MATERIALS

A. Ashwagandha:

In the Indian Ayurvedic clinical framework, Withania somnifera, also known as ashwagandha, is highly esteemed as a spice (tonic). It is used for a number of illnesses, but its most notable use is as a nervine tonic. The dried mature underlying foundations of Withania somnifera Donal are what make up ashwagandha.

Medicinal Uses and Significance: Ashwagandha can help with a variety of illnesses, including malignoma, diseases brought on by stress, and memory loss. Indians use ashwagandha as a home remedy; they believe it to be the best tonic for children and the elderly, and young people use it as an aphrodisiac.

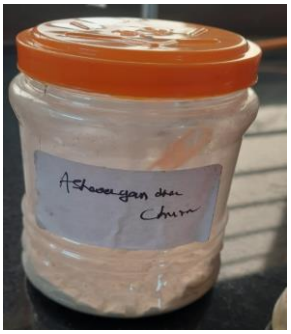

Fig. 1. Ashwagandha Powder

B. Shatavari:

Asparagus racemosus, a naturally occurring restorative plant belonging to the Liliaceae family, is notable for the

sapogenins it contains, which are the precursors of many pharmacologically active steroids. It has anti-abortifacient properties and acts as a cancer preventive agent. Shatvarin Antioxytoxic (shatavarin4): hypoglycemic, hypertensive, anticoagulant, antiviral, anticancer, and antidysenteric. Convulsive to the uterus.

Medicinal Uses and Significance: Shatavari stimulates the synthesis of prolactin, a hormone necessary for nursing. Infertility and polycystic ovarian syndrome are two disorders linked to hormone imbalance that have been attempted to be treated with shatavari. Cut down on menopause symptoms.

Fig. 2. Shatavari Powder

C. Dates:

Dates have a sweet flavor and are chewy. They also contain a lot of certain vital nutrients. Carbs account for the majority of the calories in dates. The remaining ones come from minuscule amounts of protein. Dates are high in fiber and packed with vitamins and minerals, all of which are beneficial to your health even though they are high in calories. A fruit that is good for us to eat is dates. They're commonly consumed as a natural sweetener in a variety of recipes. They're a fantastic snack as well. Although dates are easier to find in dried form, it's still important to eat them in moderation because they have more calories than fresh fruit.

Medicinal Uses and Significance: The enzymatic and non-enzymatic antioxidant systems are thought to be activated by the natural antioxidants found in dates. Dates have been used in medicine since ancient times to treat a variety of conditions, including immune modulation, diabetes, cancer, hypertension, and atherosclerosis.

Fig. 3. Fresh Dates

D. Condensed Milk:

The majority of the water in cow's milk is extracted to create condensed milk. A thick liquid is left over from this process, which is then sweetened and canned. Sweetened condensed milk tastes and looks different from regular milk, despite being a milk product. It has a thicker, creamier texture, is darker in color, and is sweeter. This condensed milk has a lot of sugar. Nevertheless, because it is made from cow's milk, it also includes a variety of vitamins and minerals, some protein, and fat.

Medicinal Uses and Significance: Together with calcium, vitamin D, vitamin B12, vitamin A, riboflavin, phosphorus, and protein, condensed milk is a good source of these nutrients. Strong bones and teeth, a functioning immune system, and a functioning cardiovascular system all depend on these nutrients.

Fig. 4. Condensed Milk

E. Pista/Nuts:

Nuts are a natural bounty that come in little bundles and offer a variety of restorative health advantages. Nuts that are flavorful, crunchy, and bite-sized have a rich nutritional profile, making them a nutritious snack. Pistas contain a wealth of nutrients, including vitamins, minerals, proteins, phenolic compounds, and carotenoids such as lutein and zeaxanthin.

Medicinal Uses and Significance: Nuts are among the many foods that can be included in a weight loss regimen as a nutritious snack. Pistachios contain large amounts of lutein and zeaxanthin, which are beneficial for eye health. And controls diabetics as well.

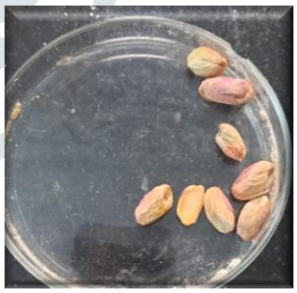

Fig. 5. Pista/Nuts

Sr. no	Ingredients
1	Ashwagandha
2	Shatavari
3	Dates
4	Condensed Milk
5	Pista
6	Dark Chocolate

Table 1. List of ingredients

III. METHOD

Ingredients	T1	T2	T3
Ashwagandha	2 gm.	4 gm.	6 gm.
Shatavari	1 gm.	2 gm.	3 gm.
Dates	20 gm.	30 gm.	40 gm.
Condensed Milk	20 gm.	20 gm.	20 gm.
Pista	7gm.	4 gm.	1 gm.
Dark Chocolate	50 gm.	40 gm.	30 gm.

Table 2. Composition Formulation of Chocolate

Method of preparation of chocolate:

Start by ensuring the freshness of dates and nuts and good quality. Then wash that dates thoroughly to remove any impurities and also remove the seeds from the dates. Next, grind the deseeded dates and nuts in a grinder until getting a smooth paste. After the above steps add an appropriate quantity of Ashwagandha (i.e.: 2gm, 4gm, 6gm.) and Shatavari (i.e: 1gm, 2 gm, 3 gm) to the date and nut paste, ensuring a well-mixed. Then heat the mixture with condensed milk for about 5 minutes, allowing it to thicken slightly and add it to the mixture. Now, heat the mixture for 2 minutes to enhance the flavours. Next step, use a double boiling method to melt the dark chocolate compound until it becomes smooth and liquid. Then roll the dates and nuts mixture into small shape balls. Next, using silicon moulds, coat each ball with the melted dark chocolate. Ensure an even coating. Finally, impart a finishing to our creation by placing the chocolate-coated balls in the refrigerator for approximately 10-20 minutes.

Receiving of fresh Dates and Nuts

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Washing

|

Deseeding

|

Grinding of Dates and Nuts

|

Appro. Quantity of Ashwagandha & Shatavari

|

Heat the Condensed Milk

|

Add the Condensed Milk into the paste

|

Heat the mixture for 2 minutes

|

Make small ball of mixture

|

Melt the Dark Chocolate by double boiling method

|

Melted dark chocolate coat on each balls by using mould

|

Refrigerator till it become solid form (Appro. 10-20 min.)

Fig. 6 Flow chart about making chocolate

Fig. 7 Chocolate by using Ashwagandha & Shatavari Powder

IV. EVALUATION

A. General Appearance:

Color & Appearance*:* Color has the power to improve patient acceptance. Additionally, the product's color added appeal.

Flavour: A good flavour can increases the patient acceptance & create a joyful atmosphere.

Body & Texture: It's just the way the chocolate feels in our mouths—soft or grainy.

Sweetness: sugar-filled chocolate.

B. Chemical Parameters:

Total Fat
Total Protein
Total Fiber
Total Sugar

C. Microbiological Parameters:

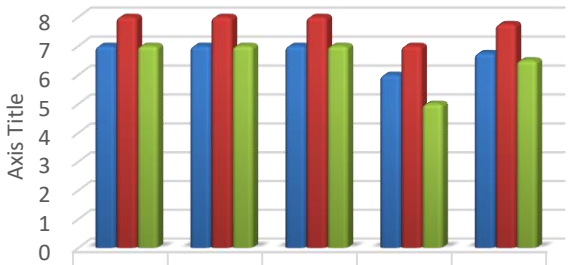
Yeast & Mould
Salmonella
E.coli (isolation)
Coliform count
Listeria Monocytogenes (isolation)

V. RESULT

Result for Chocolate:

- ***Sensory Evaluation:***

9 Points of Hedonic scale



	Color & Appearance	Flavor	Body & Texture	Sweetness	Overall Acceptability
T1	7	7	7	6	6.75
T2	8	8	8	7	7.75
T3	7	7	7	5	6.5

Fig 8. Sensory evaluation for Chocolate

- ***Chemical Parameters:***

Test Name	Specified Req.	LOQ	Results
Total Fat, %	N.A	0.50	16.30
Total Protein, %	N.A	0.50	10.64
Total Fiber, %	N.A	0.50	2.59
Total Sugar, %	N.A	0.50	45.60

Table 3. Chemical Testing for Chocolate

- ***Microbiological Parameters:***

Test Name	Specified Req.	LOQ	Results
Yeast & Mould, cfu/gm	NMT 100	10	<10
Salmonella / 25gm	N.A	-	Absent
E.coli(isolation)/gm	N.A	-	Absent
Coliform Count, cfu/gm	N.A	10	<10
Listeria Monocytogenes(isolation) / 25gm	N.A	-	Absent

Table 4. Biological Testing for Chocolate

VI. CONCLUSION

The current review describes how ashwagandha, shatavari, dates, and nuts were used to advance natural chocolate. Home-grown chocolates were prepared using powdered ashwagandha and shatavari, and they were evaluated for appearance, chemical composition, and biological test results.

Traditional Ayurvedic herbs ashwagandha and shatavari are well-known for their potential health benefits, which include immune system support, hormone balance, and stress reduction. Dates are a vitamin and mineral-rich natural sweetener. Antioxidants found in dark chocolate may benefit heart health. Nutrients like protein and good fats are also abundant in pistachios. When worn in moderation, this chocolate might be a tasty and even healthful treat.

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REFERENCES

[1] Abass, W. F. (2017). Effect of utilization of date fiber from date syrup manufacture on organoleptic properties of chocolate cake and extending the storage life of the product. International journal of science and nature, 662-666.

[2] Amrutkar, A. S. (2023). Formulation Evaluation & Development of Brain Boosting Herbal Chocolate. International journal in pharmaceutical sciences, 192-199.

[3] Fernández-López, J. (2022, April 3). Biological, Nutritive, Functional and Healthy Potential of Date Palm Fruit (Phoenix dactylifera L.): Current Research and Future Prospects. Retrieved from Mdpi: https://www.mdpi.com/2073-4395/12/4/876

[4] Firoj A. Tamboli, N. More Harinath. Formulation and evaluation of pediatric herbal chocolate. European Journal of Biomedical AND Pharmaceutical sciences. Vol 8, Issue 6, 2021.

[5] Gill, M. K. (2019). Role of Ashwagandha Incorporated Functional Foods for Betterment of Human Health: A Review. Journal of Agricultural Engineering and Food Technology, 161-165.

[6] Hasan, N. (2016). Asparagus racemosus: for medicinal uses & pharmacological actions. International Journal of Advanced Research, 259-267.

[7] Hussain, M. I. (2020, April). Nutritional and biological characteristics of the date palm fruit (Phoenix dactylifera L.) – A review. Retrieved from sciencedirect.com: https://www.sciencedirect.com/science/article/abs/pii/S2212429218309866

[8] Jouki, M. (2021, July 21). Characterization of functional sweetened condensed milk formulated with flavoring and sugar substitute. Retrieved from onlinelibrary.wiley.com: https://onlinelibrary.wiley.com/doi/full/10.1002/fsn3.2477

[9] Kaushik Singhv, K. S. (2022). Formulation and Evaluation of Herbal Chocolates by using Withania Somnifera (Ashwagandha) and Asparagus Racemosus (Shatavari). International Journal of Innovative Science and Research Technology, 1221-1228.

[10] Kumar, S., Mehla, R. K., & Dang, A. K. (2008). Use

of shatavari (Asparagus racemosus) as a galactopoietic and therapeutic herb–a review. Agricultural Reviews, 29(2), 132-138.

[11] Malhotra CK, Das PK, Pharmacological studies of Herpestis monniera Linn (Brahmi), Indian Journal of Medical Research, 1959; 47:294-305.

[12] Parizi, G. (2016, March). A review on pistachio: Its composition and benefits regarding the prevention or treatment of diseases. Retrieved from researchgate.net: https://www.researchgate.net/publication/306098099_A_review_on_pistachio_Its_composition_and_benefits_regarding_the_prevention_or_treatment_of_diseases

[13] Park, C. W. (2016, Dec). Condensed milk storage and evaporation affect the flavor of nonfat dry milk. Retrieved from ScienceDirect: https://www.sciencedirect.com/science/article/pii/S0022030216307196

[14] Poojashree Verma, Urvashi Sharma, Niharika Gokhale and Mahavir Chhajed. Formulation and Evaluation of Herbal Chocolate in the treatment of hormonal imbalance. International Journal of pharmacy and life sciences Volume 11 Issue 8: Aug. 2020

[15] Samanta, S. (2022). Dark chocolate: An overview of its biological activity, processing, and fortification approaches. Current Research in Food Science, 1916-1943.

[16] Singh, K. (2022). Formulation and Evaluation of Herbal Chocolates by using Withania Somnifera (Ashwagandha) and Asparagus Racemosus (Shatavari). International Journal of Innovative Science and Research Technology, 1221-1228.

[17] Sharma Mayank, Jain Dinesh Kumar. Chocolate formulation as drug delivery system for pediatrics. Indonesian J. Pharm, 2012; 23(4): 216-224.

[18] Speers, A. B., Cabey, K. A., Soumyanath, A., & Wright, K. M. (2021). Effects of Withania somnifera (Ashwagandha) on Stress and the Stress-Related Neuropsychiatric Disorders Anxiety, Depression, and Insomnia. Current Neuropharmacology, 19(9), 1468 1495.

[19] Tang, Z.-X. (2013, Aug 15). Date fruit: chemical composition, nutritional and medicinal values, products. Retrieved from pubmed.ncbi.nlm.nih.gov: https://pubmed.ncbi.nlm.nih.gov/23553505/#:~:text=The%20main%20chemical%20components%20of,environment%2C%20postharvest%20conditions%2C%20etc.

[20] Verma, P. (2020). Formulation and evaluation of herbal chocolate in the treatment of hormonal imbalance. International Journal of Pharmacy & life Sciences, 6909-6913.