



Formulation and Evaluation of Herbal Chocolate in the Treatment of Thrombocytopenia

B. Pharmacy

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By

Mr. Rushabh Rakesh Suryawanshi

Under the esteemed guidance of

Ms. Neha Tongire

(Assistant Professor)

Kai. Damodhar Yeole Bahuuddesiyya Sevabhavi Sanstha's

Yashodeep Institute of Pharmacy (B. Pharm)

Pimpalgaon Pandhari, Beed Road, Chh. Sambhajinagar.

Kai. Damodhar Yeole Bahuuddesiyya Sevabhavi Sanstha's

Yashodeep Institute of Pharmacy (B. Pharm)

Pimpalgaon Pandhari, Beed Road, Chh. Sambhajinagar.

1.0. Abstract

Thrombocytopenia is a condition which is having low blood platelet count. Platelets (thrombocytes) are colorless blood cells that help blood clot. Platelets stop bleeding by clumping and forming plugs in blood vessel injuries. Thrombocytopenia might occur as a result of a bone marrow disorder such as leukemia or an immune system problem. Or it can be a side effect of taking certain medications. It affects both children and adults.

Thrombocytopenia can be mild and cause few signs or symptoms. In rare cases, the number of platelets

can be so low that dangerous internal bleeding occurs. Treatment options are available. Thrombocytopenia can last for days or years. People with mild thrombocytopenia might not need treatment. For people who do need treatment for thrombocytopenia, treatment depends on its cause and how severe it is. If your thrombocytopenia is caused by an underlying condition or a medication, addressing that cause might cure it. If the condition is related to an immune system problem, doctor prescribe drugs to boost your platelet count. This research is mainly based on increasing platelets count.

In case of such kind of illness or disability we consult a doctor and after diagnosis of illness doctor prescribe some medicines which may be solid, liquid or injectables type of dosage form, which need to be administered at regular intervals due to which patient feels uncomfortable along with difficulty in swallowing specially in case of pediatric and geriatric patients. Apart from these organoleptic properties of the drug should be considered to improve patient compliance To overcome such type of side effects, idea of preparation of innovative dosage form was thought to deliver active pharmaceutical ingredient in an attractive form which results in reduced rejection / psychological inhibition towards dosage forms.

2.0. Introduction

The essential target of this study was to formulate and evaluate nutritious chocolate containing natural plant phytoconstituent for treatment of thrombocytopenia.

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attractive form which results in reduced rejection / psychological inhibition towards dosage forms. So that patients of any age can administer various drugs with increased patient compliance.

Keeping this in view a new attractive and highly acceptable form of formulation i.e chocolate formulation as drug delivery system is developed. Chocolate is a range of products derived from cocoa (cacao), mixed with fat and finely powdered sugar to produce a solid confectionery. Herbal formulations means a dosage form consisting of one or more herbs or processed herbs in specified quantities to provide specific nutritional, cosmetic benefits meant for use to diagnose, treat, mitigate. When we suffer from any kind of viral infection, nonimmune thrombocytopenia is observed or thrombocytopenia may be assign of infection. Study reported that consumption of papaya leaf (*Carica Papaya*), spinach leaf (*Spinaciaoleracea*), results in increased platelets count .Hence in current research work attempt was taken to overcome such ill effect with formulation of cost effective, edible herbal chocolates using natural plant phytoconstituents. In the present study chocolates were prepared by using Orange, spinach, Carrot, Cocoa powder, Sugar, Cocoa butter, vanilla essence, dark and white chocolate. Prepared chocolates were evaluated for physical appearance, blooming effect, stability and ph. All the formulations were stable for a period of month and concentration of played a role in the taste of chocolate and its acceptance.

2.1.1. What is Thrombocytopenia ?

Thrombocytopenia is a condition that occurs when the platelet count in your blood is too low. Platelets are tiny blood cells that are made in the bone marrow from larger cells. When you are injured, platelets stick together to form a plug to seal your wound.

Thrombocytopaenia can be caused by: medical conditions (such as problems with your bone marrow, liver disease, infections, immune conditions and blood clotting disorders) cancers such as leukaemia, lymphoma or myeloma) some medicines, including heparin.

Dangerous internal bleeding can occur when your platelet count falls below 10,000 platelets per microliter. Though rare, severe thrombocytopenia can cause bleeding into the brain, which can be fatal.

2.1.2. The Platelet

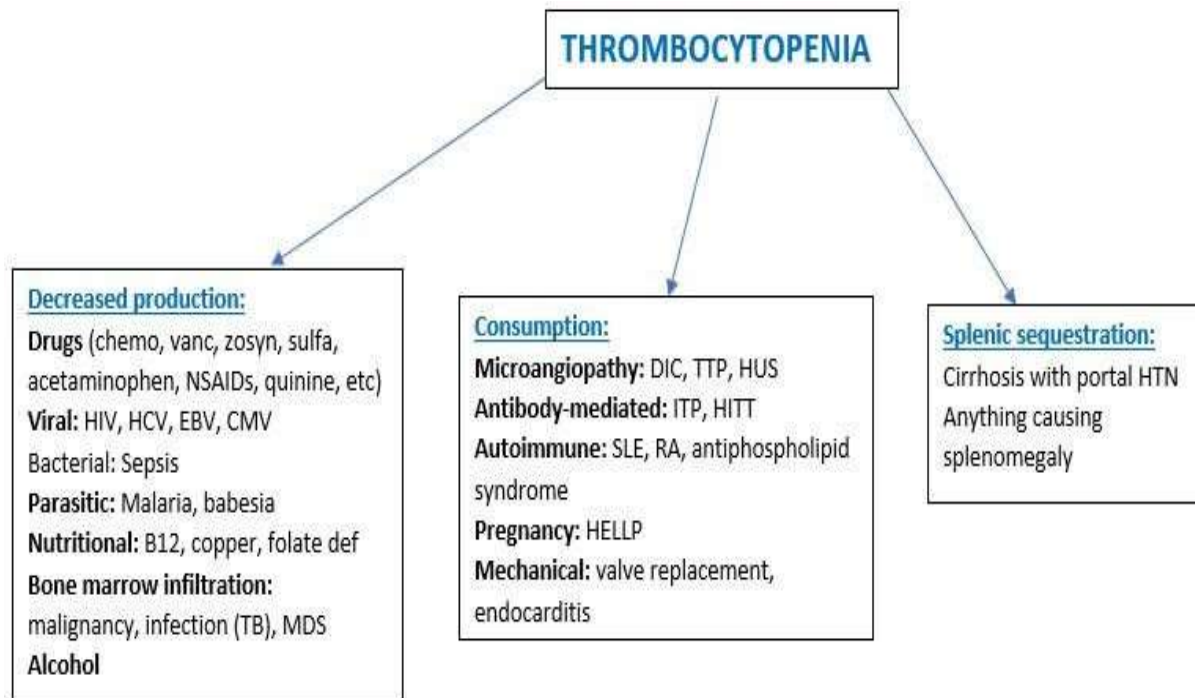
Platelets, or thrombocytes, are small, colorless cell fragments in our blood that form clots and stop or prevent bleeding. Platelets are made in our bone marrow, the sponge-like tissue inside our bones. Bone marrow contains stem cells that develop into red blood cells, white blood cells, and platelets.

The normal number of platelets in the blood is 150,000 to 400,000 platelets per microliter (mcL) or 150 to $400 \times 10^9/L$. Normal value ranges may vary slightly.

Their primary function is to prevent and stop bleeding. If a blood vessel is damaged, the body sends signals to platelets which cause them to travel to the injured area. Once the platelets arrive at the site, they clump together to form a clot that helps stop bleeding.

2.1.3. Causes

- Leukaemia or other bone marrow cancer
- An infection of the bone marrow
- A viral infection
- Liver cirrhosis
- Hepatitis C
- Bacterial sepsis



2.1.4. Symptoms

Some people with mild cases of thrombocytopenia don't have symptoms. When they do, one the first symptoms is a cut or nosebleed that won't stop bleeding.

Other symptoms include:

Bleeding gums: You may notice blood on your toothbrush and your gums may appear swollen.

Blood in poop (stool): Your poop may appear very dark.

Blood in urine (pee): If toilet water is pale pink after you pee, you may have blood in your urine.

Blood in vomit: Hematemesis, or blood in vomit, is a sign of bleeding in your upper gastrointestinal tract.

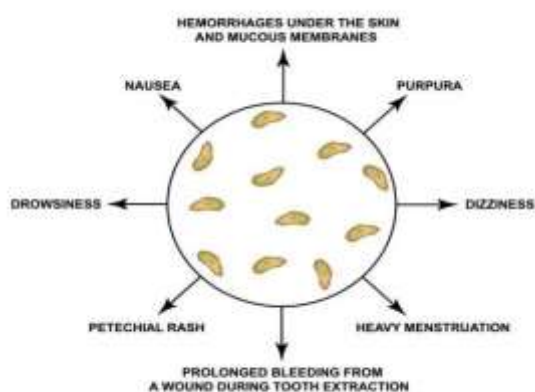
Heavy menstrual periods: If your periods last longer than seven days or you're bleeding more than usual,.

Purpura : You may have red, purple or brown spots on your skin. This happens when small blood vessels under your skin leak blood.

Bruises: Bruises happen when blood pools under your skin. You may notice you're developing bruises more .

Rectal bleeding: You may notice blood in the toilet water or after you wipe.

SYMPTOMS OF THROMBOCYTOPENIA



2.1.5. Benefits Of H. Chocolate

It may act as antioxidants.
 It may reduce high blood pressure.
 It may reduce heart disease.
 It may enhance brain functions.
 It may act as an anti-cancer agent.
 It may have anti-inflammatory effects.
 It may reduce bad cholesterol.

3.0. Material and Method.

3.1.1. Selection of Herbal Drug

For Formulation preparation, Collection of Orange fruit, spinach leafs, Carrot, Cocoa powder, Sugar, Cocoa butter, vanilla essence, Dark and White Chocolate were purchased from Local market and where as mature leafs of papaya were collected from agriculture field.

3.1.2. Standardization of herbal ingredients

Many a time, the crude drugs are mixed with various mineral substances like sand, soil, calcium oxalate powder or other drugs with different inorganic contents. The objective of determination of physiological constants is to remove all traces of organic material interfering in an analysis of inorganic elements.

3.1.3. Loss on Drying of Herbal drug extract

Moisture is an in-evitable component of crude drugs, which must be eliminated as far as practicable, which plays a very important role in the quality as well as purity of the material. Objective of drying is

to aid in their preservation, to fix their constituents, to facilitate their size reduction, to reduce their weight and bulk. Method of determination of moisture content includes the loss on drying.

4.0. Preparation of Herbal Chocolate formulation

1. All the ingredients were weighted accurately.
2. Cocoa powder and sugar was taken in beaker and mixed properly.
3. In another beaker cocoa butter were melted by using double boiler method and another beaker dark and white chocolate were also melted in another beaker by the same method.
4. Melted cocoa butter was added in mixture of Cocoa powder and sugar and mixed properly to get fine consistency.
5. During mixing to avoid phase separation melted dark and white chocolate as an emulsifier was added and mixed.
6. Finally the herbal drug extract was measured accurately and added in above prepared chocolate.
7. Then vanilla as a flavoring agent was added just before going to set in moulds.
8. Then the prepared chocolate mixture containing herbal drug extract was poured in moulds and kept in freeze to set overnight.

5.0. Result & Discussion :

5.1.1. Composition of chocolate content

Parameter	Storage Condition	After Preparation	After One Month
Colour, Odour, Taste, Mouth Feel, Appearance	2-8°C	Brown, Chocolatey, Slightly Bitter, Smooth, Glossy	No Change

5.1.2.

Evaluation Test

5.1.3. Organoleptic Properties

Content	C Butter	Sugar	Dark Chocolate	Vanilla flavour	Drug Extract
Papaya Extract	3GM	3.6GM	0.6GM	0.6GM	1.2GM

5.1.4. Stability Study

Parameter	Colour	Odour	Taste	Mouth Feel	Appearance
Papaya Extract	Greenish Brown	Chocolatey	Slightly Bitter	Smooth & Pleasant	Glossy

6.0. CONCLUSION

In this research study, we concluded that the chocolate provides smooth and creamy texture to formulation and are excellent for taste masking unpleasant flavours associated with some drugs and other excipient. The 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 easily. Herbal extracts of (Papaya leaf) *Carica Papaya*, were successfully formulated in the chocolate formulations and contain the active constituents used for to increase platelets count.

The Organoleptic properties of chocolate are excellent for masking unpleasant flavours 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 systemic side effects.

7.0. REFERENCES

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