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## Research Article

# Formulation Development and Evaluation of Herbal Candy Containing Lantana Camara Leaves Extract for Treatment of Hemorrhoid

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## ABSTRACT

Lantana camara has been named as one of the most important medicinal plants in the world. The plant has been used in various communities for treatment against various diseases. The use of leaves of lantana camara has been growing with its salutary goods being rediscovered for the possible development of new medicines, thus the need for new remedial agents with specific targets and lower adverse side goods, to extend both the clinical and preclinical studies. Recent time's development, the medicine discovery from factory source is more focused than the medicines synthesized chemically. The medicinal factory medicines can also act on pharmacological targets like cancer, malaria, HIV and so numerous dangerous conditions to the humanity. The plant has been found to have antibacterial activity, anticancer activity, anti-fungal activity, anthelmintic activity and antioxidant activity ,anti-inflammatory activity . From the ancient time we are using various plants or plant products as medicine to treat various disease and disorders. Using plant and plant products is the the most superior way from the many decades. Now here we discussed about the treatment of piles with the use of herbal candy. Plant drugs like latana camara leaves, cumin , black salt ,lemon juice, etc. are used for the preparation of candy which shows there therapeutic action on piles. Piles is one of the common diseases from which many peoples are suffered. There is lot of increment in in the number of patients suffered from piles in day-to-day Life This disease is exploring due to change in and eating habits of human being. Here the latana leaves have anti-inflammatory, analgesic action. The Ginger reduces the inflammation. The cumin seeds work as natural laxatives and treat diarrhoea and control sugar level The black salt eliminates the gases from small intestine and lemon juice with black salt shrinks the lumps of piles.

## INTRODUCTION

Haemorrhoids is a common perianal disease, which often causes haematochezia. Besides a

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surgical operation or minimally invasive treatment. Haemorrhoids are swelling and inflammation of veins in the rectum and anus. The anatomical term "haemorrhoids" technically refers to "cushions of tissue filled with blood vessels at the junction of the rectum and the anus". However, the term is popularly used to refer to varicosity of the haemorrhoid tissue. Perianal hematoma is sometimes misdiagnosed and mislabeled as haemorrhoids, when in fact they have different causes and treatments. Haemorrhoids may result from straining to move stool. Other contributing factors include pregnancy, aging, chronic constipation or diarrhoea, and anal intercourse. Haemorrhoids are either inside the anus-internal or under the skin around the anus-external.

- **Herbal Medicine**



**Fig No.01 Herbal Medicine**

Herbal medicines are one type of dietary Supplement. They are sold as tablets, capsules, powders, tea, extracts, fresh or dried plant. People use herbal medicines to try to maintain or improve their health. Many people believe that products labelled "natural" are always safe and good for them.[16] The plant has been found to have antibacterial activity, anticancer activity, anti-fungal activity, anthelmintic activity and antioxidant activity, anti-inflammatory activity. From the ancient time we are using various plants or plant products as medicine to treat various disease and disorders. Using plant and plant products is the most superior way from the

many decades. Now here we discussed about the treatment of piles with the use of herbal candy.

Plant drugs like latana camara leaves, cumin, black salt, lemon juice, etc. are used for the preparation of candy which shows their therapeutic action on piles. Piles is one of the common diseases from which many people are suffered. There is a lot of increment in the number of patients suffered from piles in day-to-day life. This disease is spreading due to change in eating habits of human being. Here the latana leaves have anti-inflammatory, analgesic action. The ginger reduces the inflammation. The cumin seeds work as natural laxatives and treat diarrhoea and control sugar level. The black salt eliminates the gases from small intestine and lemon juice with black salt shrinks the lumps of piles. Formulations made of several herbs with anti-inflammatory, styptic, analgesic, and laxative properties that lessen swelling, discomfort, and bleeding, boost gastrointestinal motility, and soften feces are available. "Arshkey™", a 7-day kit, a polyherbal kit comprising oral tablets, powder, and topical cream, is one example.[19] Polyherbal formulation- Pharmaceutical preparation that uses more than one herb as a component for increased therapeutic effectiveness and decreased toxicity of individual herbs.[5]

### **Characteristics of medicinal plant**

Plants have many characteristics when used as a treatment, as follows –

- **Synergic medicine**

The ingredients of plants all interact simultaneously, so their uses can complement or damage others or neutralize their possible negative effects.

- **Support of official medicine**

In the treatment of complex cases. Like cancer diseases the components of the plants proved to be very effective.

- **Preventive medicine**

It has been proven that the component of the plants also characterize by their ability to prevent the appearance of some diseases. This will help to reduce the use of the chemical remedies which will be used when the disease is already present i.e., reduce the side effect of synthetic treatment. An herbal plant or plant part used for its scent, flavor or therapeutic properties.[17,18] Herbal medicines are one type of dietary supplement. Herbal medicine (also herbalism) is study of pharmacognosy & the use of o basis of the medicinal plants, which are basis of traditional medicine. For centuries, cultures around the world have relied on traditional herbal medicine to meet their healthcare needs. Despite medical & technological advancement of the modern era, the global demand for herbal remedies is on the rise. In fact, it's estimated that this industry grosses about \$ 60 Billion annually. Some natural remedies may be more affordable & accessible than conventional medicines, & people prefer using them because they align with their personal health ideologies The use of herbal medicines & phytonutrients or nutraceuticals continues to expand rapidly across the world with many people now resorting to these products for treatment of various health challenges in different national healthcare setting (WHO (2004) The safety of most herbal products is further compromised by lack of suitable quality control, in adequate labelling ,& the absence of appropriate patient information.[20,21]

### **Natural Products-**

Medicinal plants & Natural products have been recognized & utilized all through mankind's history. Historically, natural products (NPs) have played key role in drug discovery, for Asthma & treatment of various human ailments. Extract of different concentration of seven medicinal plants when tried on uredospore germination of melamporalini (Ehrens) Lev. As natural measure

against linseed rust, gave significant fungicidal effect

### **History**

One of the most typical causes of anal pathology is Hemorrhoids. Subsequently, Almost all anorectal complaints are attributed to Hemorrhoids by patients and medical professionals. The fact that the term " Hemorrhoids" has been used to describe a variety of both abnormal and typical anatomical structures. The topic of this article is the application of herbal remedies to hemorrhoidal venous cushions. venous Hemorrhoids.[10,11] If a previous condition existed, cushions are always present and are normal anorectal structures. a response has been given The term "haemorrhoid" is derived from the Greek words "haema" (blood) and " rhoos " (flowing), and Hippocrates (460 BC) is said to have been the first to use it to describe the flow of blood from the anus veins. Bleeding, discomfort, and itching are possible effects. Due to the inclination toward fast food and sedentary lifestyle choices, over 10 million people in urban areas get piles every year. Approximately 75% of Indians suffer from piles. In India, the illness affects roughly 1 in every 20 people.[14]

### **Basic introduction of *lantana camara*-**

*L. camara* has also spread across the areas of Africa, Southern Europe, such as Spain and Portugal, and also the Middle East, India, tropical Asia, Australia, New Zealand, and the US, as well as many Atlantic, Pacific and Indian Ocean islands. They were brought to India by the British around 200 years ago, which then spread and became invasive there as well. The range of *L. camara* is still increasing, shown by the fact that it has invaded many islands on which it was not present in 1974, including the Galapagos Islands, Saipan and the Solomon Islands. There is also evidence that *L. camara* is still increasing its range in areas where it has been established for many years, such as East Africa, Australia and New



Zealand. The ability of *L. camara* to rapidly colonise areas of land, which have been disturbed, has allowed it to proliferate in countries where activities such as logging, clearance for agriculture and forest fires are common.



**Fig No.02 Lantana camara**

The most common species in this genus is *Lantana camara* Linn (Verbenaceae), sometimes known as wild or red sage. Many *Lantana* species have aerial components that are commonly employed in traditional treatments for cancer and tumors. To treat fever, the illness, and stomach-aches, a tea made from the plant's leaves and petals was consumed. The popular name for the species, *Lantana camara*, was likely borrowed from the West Indian region. The plant's various applications demonstrate antimalarial, anti-bacterial, and anti-diarrheal properties. The purpose of the current study was to confirm the analgesic, anti-inflammatory, and antihemorrhoidal activities of *Lantana camara* aqueous extracts. *Lantana* is known by different names in world, such as "red-sage", "wild-sage", "white-sage" in Caribbean, "tick berry" in South Africa and "big-sage" in Malaysia, "camara" in Brazil and "Wandelroeschen" in Germany. *Lantana* is also known by different names in many countries such as "lanakana", "lakana", "mikinoliahihiu" and "mikinolia kuku" in Hawaii and "bands", "phullaki", "tantbinagaairi" and "putus" in India. *Lantana* is a hairy aromatic shrub, erect, gregarious and half climbing plant. Height of

plant is mostly 1.0-1.4 m. The branches of *lantana* are rising all 4 sided along recurved prickles. Leaves length of *lantana* is about 1.5 inches wide and 3 inches long. The most common flower colors are lilac, orange, pink, yellow and white, but their color usually changes with the age. The fruits of *lantana* have a berry-like drupe, which changes from green to dark purple when mature. Weather and distribution are two major factors that affect essential oil contents in *lantana*. There are many other factors such as origin, genetic type, soil and nature of nutrients that affect the chemical constituents of *lantana* essential oil and also growth rate of leaves, flowers, weeds, stems and branches.[22,23] The *lantana* contains significant amount of essential oil while the concentration of essential oil in flower and leaves is higher than other parts of the plant such as roots and stem. Methanolic and dichloromethane leaves extracts of *lantana* showed significant variation in composition of *lantana* essential oil. Throughout the year, germination of seeds is possible. The drained soils are found to be the best for proper growth of *lantana*. *Lantana* is the most important plant having high medicinal potential. It is also being used in natural and modern synthetic products. *Lantana* essential oil obtained from different parts shows great variation in chemical composition thereby exhibiting number of variations in biological activities. Literature reports showed that *lantana* exhibited strong anti-inflammatory, anti-proliferative, larvicidal, antioxidant, anti-cancer, anti-bacterial and anti-ulcerogenic activities.[12]

## **MATERIALS-**

### **Latana Camara:-**

#### **Synonyms**

Raimuniya, Ghaneri, *Latana*

#### **Taxonomical classification**

Kingdom	Plantae
Clade:	Tracheophytes



Clade:	Angiosperm
Clade:	Eudicots
Clade:	Asterids
Order:	Lamiales
Family:	Verbenaceae
Genus:	Lantana
Species:	L. camara

#### USES OF LANATANA CAMARA-

- It is used as an anti-inflammatory.
- It shows an antibacterial activity.
- It shows an analgesic activity.
- It also shows the antimicrobial, antifungal, insecticidal activity.
- It has also been used in traditional herbal medicines for treating a variety of ailments, including cancer, skin itches, leprosy, chicken pox, measles, asthma and ulcers.

#### DESCRIPTION-

The perennial lantana camara is an upright, sprawling, or scandent shrub that can grow up to 2 meters (6½2 feet) tall and create dense thickets in a range of habitats. It can reach a height of 6 meters (20 feet) and climb up into trees given the correct circumstances.

#### Phytochemical studies-

The phytochemical analysis of L. camara extracts showed the presence of different secondary metabolites, like alkaloids, phenols, flavonoids, glycosides, tannins and terpenoids

#### Medicinal properties-

The decoction prepared from L. camara leaves is mostly used in herbal medicine for wound healing, fever treatment, cough treatment, influenza treatment, stomach ache, malaria, etc. . It has also been recorded that can be used for the treatment of cancers, chickenpox, measles rheumatism, and ulcer .L. camara also displays the following activities such as antioxidant, anti-fungal, anti-diabetic, analgesic, and anti-inflammatory .

#### HEMORRHOIDS-

Haemorrhoids – Haemorrhoids is a common perianal disease, which often causes haematochezia. Besides a surgical operation or

minimally invasive treatment. Haemorrhoids are swelling and inflammation of veins in the rectum and anus. The anatomical term "hemorrhoids" technically refers to "cushions of tissue filled with blood vessels at the junction of the rectum and the anus".However, the term is popularly used to refer to varicosity of the hemorrhoid tissue. Perianal hematoma are sometimes misdiagnosedndmisabeled as hemorrhoids, when in fact they have different causes and treatments. Hemorrhoids may result from straining to move stool. Other contributing factors include pregnancy, aging, chronic constipation or diarrhea, and anal intercourse.[3] Hemorrhoidsare either inside the anus-internal or under the skin around the anusexternal. Hemorrhoids develop from 2 different places Hemorrhoids also called piles, are swollen veins in your anus and lower rectum, similar to Herbal medicines are one type of dietary Supplement. They are sold as tablets, capsules, varicose veins. Hemorrhoids can develop inside the rectum (internal Hemorrhoids) or under the skin around the anus (external Hemorrhoids) Depending on anal origin within anal canal and relation to dentate line Hemorrhoids divided in to internal heamorroids , external heamorroids, mixed heamorroids.[1,2]



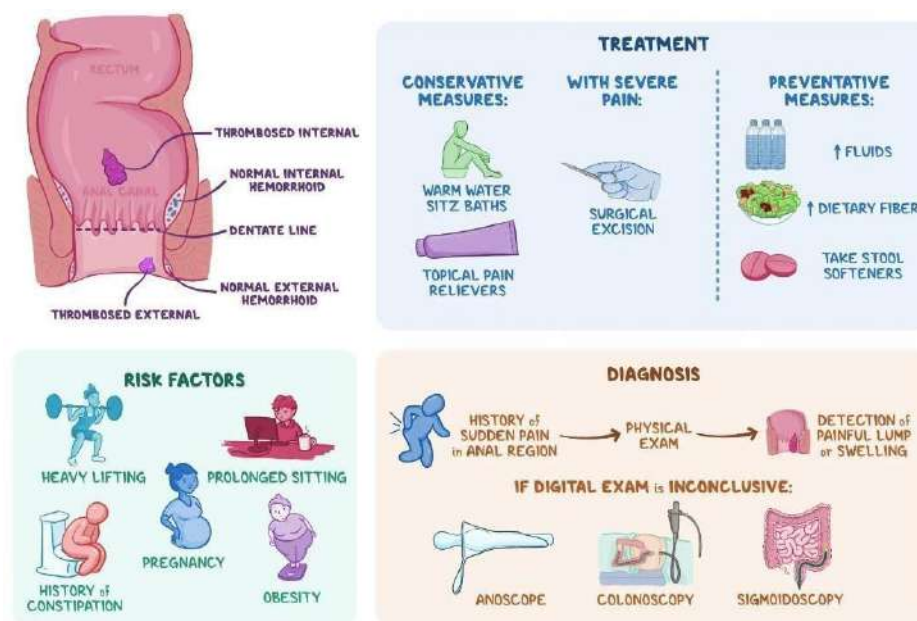
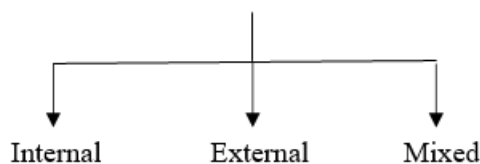


Fig No.03 HAEMORRHOIDS

Swollen & inflamed veins in the rectum and anus that cause bleeding. Hemorrhoids are usually caused by straining during bowel movements, obesity pregnancy. External hemorrhoids are when one or more tender bumps form beneath the skin surrounding your anus. These are dilated blood vessels that have become so enlarged that they pooping Straining while pooping. The most common cause of external hemorrhoids is repeated straining while having a bowel movement. This is often caused by severe cases of constipation or diarrhea. Straining Weakened support tissues. As you age, the tissues tend to weaken around the anus and rectum. Pregnancy Pregnant people may also be at an increased risk of hemorrhoids because of the increased pressure of the abdomen on these veins. Obesity. Having excess weight has been associated with having hemorrhoids. Heavy lifting. You may have a higher risk of hemorrhoids if you frequently lift heavy objects. Not eating enough fiber. A low fiber diet may lead to constipation, which can cause hemorrhoids.[4]

### CLASSIFICATION-

Depending on anal origin within anal canal and relation to dentate line haemorrhoids divided in to **HEAMORRHOIDS**



- I. Internal haemorrhoids.
- II. External haemorrhoids.
- III. Mixed haemorrhoids.

### TYPES OF HEMORRHOIDS-

#### 1. External Hemorrhoids-

These are under the skin around your anus. Sign & symptoms might include. Itching or irritation in your anal region Pain or discomfort Swelling around your anus Bleeding

#### 2. Internal Hemorrhoids-

Internal hemorrhoids lie inside the rectum. You usually Can't see or feel them, they rarely cause discomfort. Painless bleeding during bowel movements A hemorrhoid to push through the anal opening resulting in pain & irritation. If blood pools in an external hemorrhoids & forms a clot (thrombus) it can result in –

- Severe pain
- Swelling
- Inflammation
- A hard lumps near your anus

## CAUSES-

- The vein around your anus tend to stretch under pressure of may bulge or swell. Hemorrhoids can develop from increased pressure in the lower rectum due to-
- Straining during bowel movement
- Sitting for long periods of time on the toilet.

## For Internal hemorrhoids

Grade I - bleeding without prolapse.

Grade II - prolapse with spontaneous reduction

Grade III - prolapse with manual reduction.

Grade IV-incarcerated, irreducible prolapse

## MATERIALS –

- Honey
- Sucrose
- Ginger
- Colouring agent ( chocolate brown)
- Citric acid
- Methyl cellulose
- Cumin
- Black salt
- Water



Fig No.04 HONEY

## USES-

It is an Anti-oxidant, Anti-inflammatory and Antibacterial agent, minerals. Honey commonly use orally to treat the cough and topically to treat burns and promote Wound healing.



Fig No.05 Ginger

## USES-

ginger helps in digestion , improves immunity, relives nausea , reduces pain. It also has Anti-oxidant and Anti- inflammatory property



Fig No.06 Sucrose

## USES-

It act as sweetening agent , Bulking agent and also binder.



Fig No.07 Black Salt

## USES-

Treat Indigestion , Acidity also aids in the slight reduction of blood glucose level.

**Brown Chocolate-**

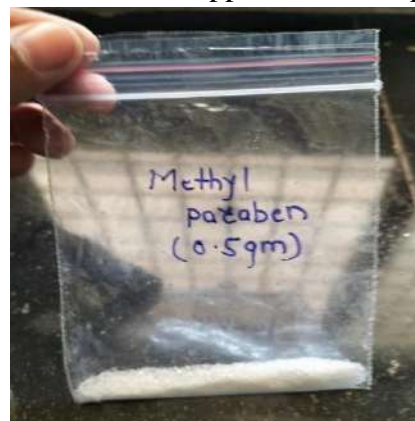
It may reduce high blood pressure, and act as colouring agent.



**Fig No.08 Cumin**

**USES-**

It treat diarrhea, control blood sugar , also reduces the inflammation and suppress muscle spasms.



**Fig No.09 Methyl Paraben**

**USES-**

Act as preservative prevent the growth of mold and other harmful Bacteria.

METHOD- Decoction and heating technique

**Formulation Table-**

**Table No.-01**

Sr. No.	Name of Ingredient	Quantity Taken			Uses
		F1	F2	F3	
1.	Extract of leaves of Lantana camara	25gm	25gm	25gm	Anti-inflammatory
2.	Sucrose	30gm	60gm	50gm	Sweetning Agent
3.	Ginger	3gm	2gm	2gm	Anti- oxidant
4.	Black Salt	3gm	3gm	2gm	,Antiinflammatory
5.	Citric Acid	0.5ml	0.5ml	0.5ml	Indigestion, Treat acidity
6.	Methyl Cellulose	0.03gm	0.05gm	0.02gm	Flavouring agent
7.	Cumin	2gm	2gm	1gm	Treat diarrhea, Control blood sugar
8.	Brown Chocolate	3ml	2ml	2ml	Colouring Agent
9.	Honey	10ml	7ml	5ml	Anti-oxidant, Minerals
10.	Methyl/Propyl Paraben	0.5gm	0.5gm	0.5gm	Preservatives
11.	Water	q.s	q.s	q.s	Vehicle

**PROCEDURE FOR PREPARATION OF CANDY-**

1. Collect the fresh leaves of Lantana camara plant. Take 25 gm of Lantana camara leaves
2. Wash leaves with fresh water.
3. Then take a 2 gm of ginger, cut it into small pieces .Grind Lantana camara leaves & ginger.
4. After grinding , Boil with 250 ml of water
5. After boiling filter solution with help of filter paper.



6. Take Filter solution for boiling & add 5ml Honey, 50gm Sugar & 2 gm Black salt. For the good colour add 2-3 drop of chocolate brown .
7. Boil upto 30 min until get thick consistency.
8. Take this solution & make candy shape & leave it for 10-15 min.

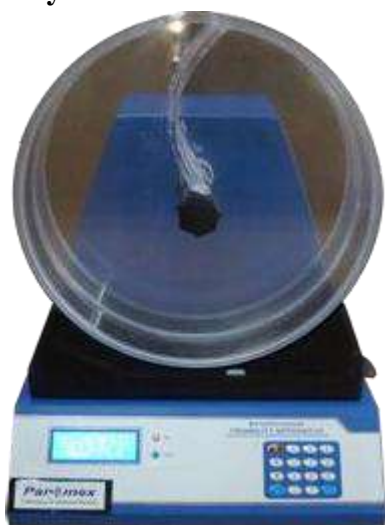
**Evaluation test :**

**1. Average weight and weight variation test-**  
 20 candies were selected and weighed collectively and individually on an electronic balance from the collective weight ,average weight was calculated. Each candy weight was then compared with average weight assure whether it was within permissible limits or not.

$$\text{Average weight} = \text{weight of 20 candies} / 20$$

$$\% \text{ weight variation} = \frac{\text{average weight} - \text{weight of each candy}}{\text{average weight}} * 100$$

**2. Friability test-**



**Fig No.10 Friability test Apparatus**

The friability of the 20 candies from each batch was test by a friability at aspeed of 25 rpm for 4 min. The candies were then dedusted reweighed and percentage weight loss calculated by the equation

$$\% \text{ friability} = \frac{(\text{initial weight} - \text{weight after friability}) * 100}{\text{initial weight}}$$

**3. Hardness test -**



**Fig No.11 Hardness Tester Apparatus**

To evaluate the diametrical crusing strength,3 candies from each formulation were tested using MAC hardness tester.

**4. In vitro mouth Dissolving-**



**Fig No.12 Dissolution Test Apparatus**

Mouth dissolving time was determine by each batch formulation using USP disintegration apparatus, where candy were place in each tube of the apparatus and time taken for the candies to dissolve completely.

**Formulation For Preparing Artificial Saliva-**  
**Table No.-02**

Sr No.	Composition	Quantity per 1000 gm
1.	Chloride	0.96gm
2.	Sodium chloride	0.67gm
3.	Magnesium chloride	0.04gm
4.	Potassium phosphate	0.27gm
5.	Calcium chloride	0.12gm

6.	Propyl paraben	0.1gm
7.	Methyl p-hydroxybenzoate	8.0gm
8.	Sorbitol Potassium	24gm
9.	Water	1000ml

**Organoleptic examination of prepared candy-**

**Table No.-03**

Sr. No.	Physical Parameters	Results		
		F1	F2	F3
1.	Shape	Rose shape	Rose shape	Rose shape
2.	Colour	Red	Dark red	Brown
3.	Texture	Hard	Very hard	Hard

**RESULT OF EVALUATION TEST-**

**Table No.04**

Sr. No.	Test	Result		
		F1	F2	F3
1.	Weight variation test	2.19 gm	2.41gm	2.21gm
2.	Friability test	1.12	0.90	0.44
3.	Hardness test	2N	4N	3N
4.	In Vitro mouth dissolving test	6min	6min	6min

**DISCUSSION-**

As bioavailability is a major factor responsible for the pharmacological activity of any drug, the present work is focused on the formulation of the active pharmaceutical ingredients as candies due to their various advantages. Candies increased bioavailability by increasing the solubility. The worldwide interest in the use of Lantana camara leaves has been growing with its beneficial effects being rediscovered for the possible development of new drugs.

**CONCLUSION-**

Medicinal plants offer the most dynamic, polyvalent approach for management of complex.

- The End biogenic approach allows for medicinal plants to take their proper place at

the head of the therapeutic list of consideration.

- These data support the pharmacological basis of Lantana camara plant as a traditional herbal medicine for treatment of inflammation.

The formulation beneficial for the patients suffered from Piles. The formulation is prepared from the plants source so the chances of side effects are lower than the allopathic formulation. This is good supplement for recovery from the illness and pain of piles and give relief to the person this herbal powder is natural option to the allopathic drugs along with several health benefits. All the herbs used in this preparation are easily available during any season and are not costly thus the product is economically feasible. In this study various formulation were developed . evaluation parameters like thickness weight variation , and hardness show that they were within the limits . It can be concluded that the formulation F3 show better results as compared to F1 & F2. The formulation containing colour improves the texture, and appearance of the candies.



**Fig No.13 Candy(Finished Product)**

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