

Formulation and Evaluation of Herbal Churna for Constipation

Mr. Jaydeep V Satre¹, Prof. Suryawanshi R. K², Bushan B Wagh³, Vishal C Waghchaure⁴,
Pranit P Surwade⁵

Scholars, Rashtriya College of Pharmacy. Hatnoor, Kannad, Chh. Sambhajinagar, Maharashtra, India^{1,3,4,5}
Assistant Professor, Rashtriya College of Pharmacy. Hatnoor, Kannad, Chh. Sambhajinagar, Maharashtra, India²

Abstract: *Formulation and evaluation of herbal churna for constipation.*

- *Churna is a very famous ayurvedic medicine for constipation. It is a traditional ayurvedic medicine.*
- *The goal of treatment relieves the cause of constipation and to promote regular and predictable bowel movement.*
- *Regulates bowel movement.*
- *Relieves frequent and chronic constipation.*
- *Helps to pass stool more smoothly.*
- *churna is a very famous Ayurvedic medicine for constipation. It is not a traditional Ayurvedic medicine.*
- *It is a proprietary Ayurvedic medicine. It means that the formula of Kayam churna is not mentioned in any Traditional Ayurvedic text books.*
- *The manufacturer of Churna, Sheth Brothers, formulated a combination of few Ayurvedic herbs that benefit in constipation, blended them into powder form and labelled it as churna.*
- *As the standardization of herbal formulation is great concern for its safety and efficacy for that reason this work is aimed to formulation comparative evaluation of churna with marketed product.*

Churna, a traditional Ayurvedic formulation, has been used for centuries to treat constipation. The powder, composed of a blend of natural herbs and ingredients, stimulates bowel movements, softens stools, and relieves straining during defecation. With its natural and safe composition, Churna offers a cost-effective and minimally invasive solution for managing constipation. These abstract reviews the ingredients, preparation, and pharmacological properties of Churna, highlighting its potential as a natural remedy for constipation relief.

Keywords: Churna, Ayurvedic formulation, constipation relief, natural remedy, traditional medicine

I. INTRODUCTION

Churna is defined as a fine powder of drug or drugs in Ayurvedic system of medicine. Drugs mentioned in patha, are cleaned properly, dried thoroughly, pulverised and then sieved. The churna is free flowing and retains its potency for one year, if preserved in an air tight container. Triphala churna, Trikatu churna, Drakeshadi churna and Sudharsana churna are some of examples. Churna formulation are similar to powder formulations in Allopathic system of medicine. In recent days churna is formulated into tablets in order to fix the dose easily. These forms of medicament are prescribed generally because of their particle size. Smaller the particle size greater is the absorption rate from g.i.t and hence the greater is bioavailability. It is prescribed by the Ayurvedic physician for treating conditions such as diabetes, indigestion, constipation etc. Indigestion is a common ailment affecting the general population and in allopathy system antacids are commonly prescribed. Since the usage of such aluminium containing antacids cause deleterious effects like Alzheimer's disease upon long term usage, we explored an alternative and safe remedy for indigestion. Hence, we prepared a churna with natural ingredients commonly used by mankind for culinary purposes. Thus, the present study examined the favourable influence of four spices formulated into churna said to have digestive property. The common ingredients of these churna were Ginger (*Zingiber officinale*), Ajowan (*Trachipterus ammi*), Cinnamon (*Cinnamon umzeylanicum*) and Fennel (*Foeniculum vulgare*). The formulated churna derived from above said drugs is reported to have a wide range of biological activity. Ginger contains aromatic principle like Zingiberene and bisabolene while

pungent principles are gingerols and shogaols. Other components are nerol, geraniol, d-camphor, β - Phellandrene, linalool, α -farnesene, [1] Shogaol, [2] and also diarylheptanoids such as zingerone A&B. This is used in the treatment of flatulence, colic, indigestion, vomiting, constipation. It also maintains the tonicity of intestine muscle [3,4]. Ajowan was found to contain essential oil that contains 50% thymol. This is used in traditional medicine for the treatment of indigestion and also as antispasmodic [5]. Cinnamon contains cinnamaldehyde, which is a phenylpropene derivative [6]. It was found to possess antibacterial property and is mostly used as carminative. Fennel contains anethole and fennelone. This is mainly used as a carminative [7,8,9,10]. An earlier report on the digestive and carminative property of the mentioned ingredients prompted us to formulate and evaluate the digestive enzyme activity namely an amylolytic, lipolytic and proteolytic activity in comparison with (marketed formulation) used as a digestive agent. Churna, Standardization, Herbal formulation

Ayurvedic Approach

Ayurvedic physiology is based on the three humoral pathophysiological elements known as the Doshas, as the fundamental base for all the psychosomatic function or homeostasis. Vata, Pitta, and Kapha are the three Doshas. These three factors are substantial for all the anabolic and catabolic macro

and micro processes in the body and therefore their equilibrium and synchronous state is mandatory for the maintenance of homeostasis. Health care is a highly individualized practice under Ayurvedic principles. These principles state that everyone has a specific constitution, or prakruti, which determines his or her physical, physiological, mental character, and disease vulnerability. Prakruti is determined by three "body energies" called doshas. There are three basic doshas, and though everyone has some features of each, most people have one or two that predominate. The first one is Pitta energy which is linked to fire. It is thought to control the digestive and endocrine systems. People with pitta energy are considered fiery in temperament, intelligent and fast-paced. When pitta energy is out of balance, ulcers, inflammation, digestive problems, anger, heartburn, and arthritis can result. The second is Vata energy, which is associated with air and space and is linked to bodily movement, including breathing and blood circulation. Vata energy is said to predominate in people who are lively, creative, original thinkers. When out-of-balance, Vata types can endure joint pain, constipation, dry skin, anxiety, and other ailments, and third is Kapha energy, linked to earth and water, is believed to control growth and strength, and is associated with the chest, and back. Kapha types are considered solid in the constitution, and generally calm. But obesity, diabetes, sinus problems, insecurity, and gallbladder issues can result when Kapha's energy is out of balance. According to Ayurvedic beliefs, factors such as stress, an unhealthy diet, weather, and strained relationships can imbalance a person's doshas. Among the oldest medicinal systems in the world is Ayurvedic medicine. As part of ayurveda, products derived mainly from plants are combined with products derived from animals, metals, and minerals, as well as diet, exercise, and lifestyle. There are many ways to prepare Ayurvedic formulations. There are mainly two groups of

Ayurvedic compound formulations:

- 1) Kasthausadhi
- 2) Rasaushadhi

Kasthausadhi

The meaning of Kasthausadhi is a drug obtained from medicinal plants.

Rasaushadhi

It refers to drugs and the use of metals and minerals in medicine. Herbo-mineral formulations, or Rasaushadhi, are formed by combining metals and herbs

Ayurvedic Dosage form types

Ayurvedic dosage forms are classified into four forms and their respective subtypes. They are as follows

1. Solid dosage forms: i. Pills ii. Gutika iii. Vatika
2. Liquid dosage forms: i. Asava ii. Arishta iii. Taila iv. Arka
3. Semi-solid dosage forms: i. Avaleha ii. Lepa iii. Ghrata

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4. Powder dosage forms: i. Churna ii. Bhasma iii. Satva8-9

Some Ayurvedic herbs may produce side effects or interact with conventional medications

Churna:

Churna is a Sanskrit term that refers to a type of Ayurvedic medicine that is made from a mixture of dried and powdered herbs, spices, and other natural ingredients. The term "Churna" literally means "powder" in Sanskrit.

Churna is a traditional Ayurvedic formulation that has been used for centuries to promote health and wellness. It is a versatile form of medicine that can be used to treat a variety of health conditions, including:

- Digestive issues
- Respiratory problems
- Skin conditions
- Stress and anxiety
- Immune system support

The benefits of Churna include:

- Easy to prepare and administer
- Can be customized to individual needs and health conditions
- Can be used in combination with other Ayurvedic remedies
- Natural and holistic approach to health and wellness

Churna can be prepared in various ways, including:

- Mixing powdered ingredients with water or other liquids to create a paste or decoction
- Taking the powder orally with water or other liquids
- Using the powder as a topical application for skin conditions

Some common examples of Churna include:

- Triphala Churna
- Hingvashtak Churna
- Panchsakar Churna
- Nityam Churna
- Kayam Churna

It is important to note that Churna should only be prepared and administered by a qualified Ayurvedic practitioner, as the preparation process involves specific techniques and methods to ensure the potency and efficacy of the final product.

Bhasma:

Bhasma is a Sanskrit term that refers to a type of Ayurvedic medicine that has been purified and calcined to create a potent and fast-acting remedy. The process of creating Bhasma involves heating the ingredients to extremely high temperatures, usually between 500-1000 degrees Celsius, to create an ash-like powder.

Bhasma is used to treat a variety of health conditions, including:

- Chronic diseases
- Degenerative diseases
- Autoimmune disorders
- Inflammatory conditions

The benefits of Bhasma include:

- Fast-acting and potent
- Easy to absorb and digest
- Can be used to treat a variety of health conditions
- Can be used in combination with other Ayurvedic remedies

Some common types of Bhasma include:

- Swarna Bhasma (Gold Ash)
- Rajata Bhasma (Silver Ash)

- Tamra Bhasma (Copper Ash)
- Loha Bhasma (Iron Ash)
- Abhrak Bhasma (Mica Ash)

It is important to note that Bhasma should only be prepared and administered by a qualified Ayurvedic practitioner, as the preparation process involves high temperatures and can be dangerous if not done properly.

Satva:

Satva is a Sanskrit term that refers to a type of Ayurvedic medicine that is made from the essence or extract of a plant or herb. It is a concentrated and potent form of the ingredient, which is extracted using a traditional Ayurvedic process.

Satva is used to treat a variety of health conditions, including:

- Digestive issues
- Respiratory problems
- Skin conditions
- Stress and anxiety
- Immune system support

The benefits of Satva include:

- Highly concentrated and potent
- Easy to absorb and digest
- Can be used to treat a variety of health conditions
- Can be used in combination with other Ayurvedic remedies

Satva is often used in Ayurvedic medicine to:

- Enhance the bioavailability of the ingredient
- Increase the efficacy of the treatment
- Provide a natural and holistic approach to health and wellness

Some common examples of Satva include:

- Ashwagandha Satva
- Brahmi Satva
- Guduchi Satva
- Turmeric Satva
- Ginger Satva

It is important to note that Satva should only be prepared and administered by a qualified Ayurvedic practitioner, as the preparation process involves specific techniques and methods to ensure the potency and efficacy of the final product.

Commercial constipation churna available in market :

Brand name : Kayam churna

Ingridient :

Senna leaves

Mulethi

Ajwain

Black salt

Nishoth

Haritaki

Svarjikshara



Benefits of kayam churna :

It helps to treat constipation

It is an effective medicine to treat acidity linked with constipation

Prevents bloating and flatulence

Cures ulcers

Brand name: Hingavashtak churna

Ingredients :

Jeera or cumin

Hing

Ginger

Long papar or pippali

Feenel

Sendha namak



Benefits of hingavashtak churna :

Relief from gas and bloating

Constipation relief

Stomach discomfort

Brand name : Panchasakar churna

Ingredient:

Ginger

Rocksalt

Harad

Senna leaves



Benefits of panchasakar churna :

- Relives constipation
- Cures piles
- Anal fistula
- Improve digestion
- Relives abdominal pain

Brand name : Nityam churna

Ingridient :

- Trifala
- Bibhitaka
- Haritaki
- Yastimadhu
- Swarnapatri
- Fennel seed



Benefits of nityam churna :

- Regulates healthy digestion
- Cleanses the intestinal walls
- Soothes the internal walls of the intestine
- Cures and prevents gastric problem
- Strengthenens muscular movement

Brand name : triphala churna

Ingredients :

Haritaki

Bibhitaki

Amla



Benefits of triphala churna :

Helpful in indigestion and constipation

Boost digestion process

Reduces gastric process

Naturally improves bowel movement

Good source of anti –oxidant

II. REVIEW LITERATURE

Patel et al. (2019):

Formulation and evaluation of herbal churna for constipation involves a multidimensional approach, encompassing botanical, pharmacological, and formulation aspects.

Gupta et al. (2020):

investigated the efficacy of a churna containing Triphala, Senna, and Psyllium husk in promoting bowel movements and relieving constipation symptoms.

Sharma et al. (2018) :

Formulation and evaluation of herbal churna for constipation have garnered significant attention in recent years due to the rising interest in natural remedies and the need for effective and safe alternatives to conventional laxatives.

Samantha Mk et al(2000):

Natural products have been a source of inspiration for drug discovery and development Herbal drugs are becoming increasingly popular due to their perceived safety and efficacy There is a need for scientific validation of traditional medicinal plants to ensure their safety and efficacy Various techniques such as chromatography and spectroscopy are used to analyze and standardize herbal drugs The authors discuss various aspects of natural product development, including extraction, isolation, and characterization of bioactive compounds.

Sagar Bhanu P.S et al(2005):

The authors highlight the need for standardization in herbal drug development to ensure quality, safety, and efficacy. The authors discuss various parameters involved in standardization, including botanical identification, phytochemical analysis, and pharmacological evaluation.

Ramya kuber et al (2017):

Preparation of the ethanolic extract of each individual ingredients of Shatavaryadi Churna herbal formulation, marketed and house formulation. Shatavaryadi Churna was evaluated by: Organoleptic, Preliminary

Phytochemical analysis, Determination of Extractive values, Ash values, moisture content, Bulk density, Tap density, Carr index, Hausner's ratio, Angle of repose and In vitro antimicrobial activity.

Mr.Gunji Venkateswarlu et al (2019):

In the recent years there has been rapid growth in the field of herbal medicine most of the tradition systems of medicine are accepted universally after standardization only. it very important to develop an essential techniques to standardization of herbal related drugs.

III. MATERIAL AND METHODS

Fennel (*Foeniculum vulgare*) :



Fig no. 1 Fennel

Fennel (*foeniculum vulgare*)

Synonyms: sauf

Biological source: fennel, (*Foeniculum vulgare*), perennial herb of the carrot.

Family: *Apiaceae*

Chemical constituents: Fennel contains volatile oil (1-4%), fixed oil (9-12%) and proteins (20%).

Uses: Fennel is used for various digestive problems including heartburn, intestinal gas, bloating, loss of appetite and colic in infants

Mulethi (*Licorice*) :



Fig no. 2 Mulethi

Mulethi :- (*Yashtimadhu*) Family :- *Fabaceae*.

Biological source :- licorice, *Glycyrrhiza Glabra* Synonyms :- *Yashtimadhu*

Chemical constituents :- Glycyrrhizin / glycyrrhizic acid Glucuronic acid

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Sugars :- Glucose, mannitol, Resin volatile Starch

Uses :-

Maintain mucosal health of the digestive tract.

Relieves Constipation.

Present gastric and peptic ulcer

Triphala (Three Fruits) :



Fig no. 3 Triphala

Triphala:- (Three fruits)

Family :- *Euphorbiaceae*. Synonym :- vara, phalatrikam Biological source :-

Embilica officinalis (Indian gooseberry), *Terminalia belerica* (Belletic mytobula), *Terminalia chebula* (chebulic mycobalam). Chemical Constituents :-

Gallic acid, ellagic acid, ethyl gallate, golloyl glurose and chebulaginic acid. Uses :-

Analgesic.

Antibacterial, anti-arthritic.

hypoglycemic, antiaging. Antiviral.

It helps with headache, dyspesia, Fatigue, Oxidative stress reduction

Ajwain (Carom seed) :



Fig no. 5 Ajwain

Ajwain :- (Carom seed) Family :- *Umbellifers*.

Synonym :- Ajwain, Careway, thymol seed. Biological source :-

Originated in the eastern regions of Persia and India Chemical Constituents :-

Thymol (35-60%)

Carvacrol (11.1.)

Uses :-

Improve Digestive health.
Provide Relief from cough and Constipation.
Fight bacteria and Infection.
Have Anti Inflammatory effect.
Soothe ear and tooth & Aches

Kala Namak (Black Salt) :



Fig no. 5 Kala Namak

Black salt (kala namak)

Biological source :- Salt mines

Synonym :- Himalaya black salt, Indian black salt

Chemical Constituents :- Sodium Chloride, and a trace amount of sodium sulphate, sodium bisulphite. Sodium sulphide iron sulphide and hydrogen sulphide

Uses:

Good for eye sight.
Improve taste.
Constipation cure.
Good for Arthritis.
Promotes hair growth

Flaxseed (Linseed) :



Fig no. 6 Flaxseed

Flaxseed (Linseed) Family :- *Linaceae*.

Synonym :- Linseed, Flaxseed. Biological source :-

Linseed is the dried ripe seed of *linum usitatissimum* linn. Chemical constituents :-

α-linolenic acid.

Dyphylline.

Uses :-

Preventing Constipation.

Reducing hot flashes and Fatigue.

Easing the symptoms of arthritis.

Improves digestive health.

Reduces high cholesterol

Fenugreek (*Trigonella Foenum*) :



Fig no. 7 Fenugreek

Fenugreek (*Trigonella foenum*) Family :- *Fabaceae*.

Synonym :- Alhalva, Chandrika, Fenugreek. Biological source :-

Dried seed of *Trigonella Foenum*. Chemical constituents :-

Alkaloids, Amino acids, Saponins, steroidal flavonoids. Uses :-

Fenugreek is a mild bulk forming laxative that's best suited for long term use in people with constipation.

Fenugreek seed has a soothing effect on the digestive system.

Preparation of churna:-

The raw material such as Fennel (*Foeniculum vulgare*) 5gm, Mulethi (Licorice) 5gm, Triphala (Three fruits) 2gm, Ajwain (Carom seed) 2 gm, Flaxseed (linseed) 2gm, Kala namak (Black salt) 2gm, Fenugreek (*Trigonella foenum*) 2gm, were used for the preparation of the formulation. The authentication is carried out based on the microscopic characteristics of powdered drug. The finally powdered drug. The finally powdered raw material were passed through sieve number 60 and mixed in an appropriate ratio 5gm Fennel, 5gm Mulethi, 2gm Triphala, 2gm Ajwain, 2gm Kala Namak, 2gm Flaxseed, 2gm Fenugreek. The churna were packed in an air tight container.

Method used in preparation of churna :-

Drying :- All the powder are dry form grinded

Size reduction :- The crude ingredient was collected and these ingredients were size reduced using a driven mixer individually.

Weighing :-

Next a work weight out of the ingredient for the batch. For some ingredients, only a small amount is necessary in the batch but if a very large batch is being made, and several ingredients are needed in large amount.

Mixing :-

In a formula in which no pre mixing is required, after checking and weighing the ingredients are simply mix mixture. The ingredients are Completely mixed with each other.

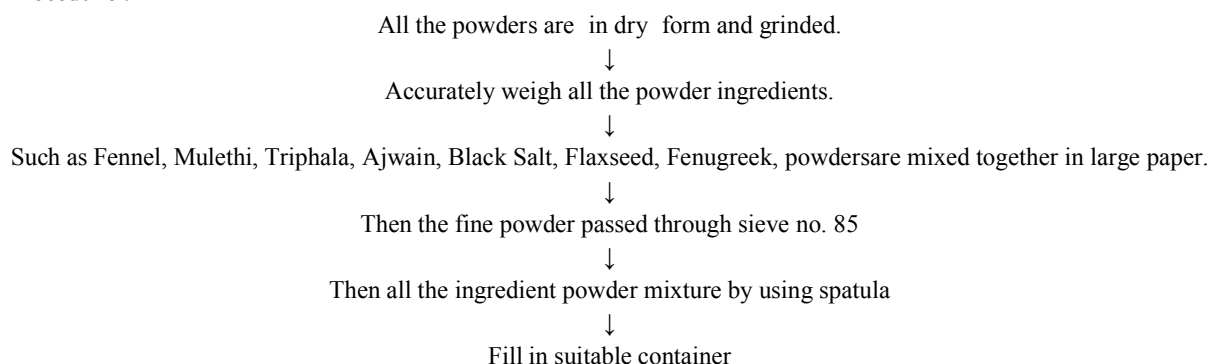
Filling :-

The finished batch of churna product formed place in the Filling area. Then the measured amount of churna on the weighing balance

Packaging :-

From the filling area, the plash Container to the packaging Line. The packaging Complete and the labelling with products of the product write the full information Then the products are taken to the warehouse to await distribution.

Procedure :-



Experimental work

Formulation table for herbal churna:-

SR. no	Name of Ingredient's		Quantity
	Ayurvedic	English	
1	Fennel	Foeniculum Vulgare	5gms
2	Mulethi	Licorice	5gms
3	Triphala	Three Fruits	2gms
4	Ajawaine	Carom Seed	2gms
5	Kala namak	Black Salt	2gms
6	Flax Seeds	Linseed	2gms
7	Fenugreek	Trigonella Foenum	2gms

Evaluation parameters of herbal churna

Organoleptic Evaluation :-

Colour :-

The herbal churna powder is evaluated by its colour and the colour is checked visually.

Odour :-

Herbal churna powder is checked by smelling the product.

Taste :-

Taste of churna is checked by manually testing of powder

Abrasiveness :-

Abrasiveness of herbal churna powder is checked manually by use in constipation

Spread ability :-

It was evaluated manually by spreading powder. 7. Texture:-

It is evaluated manually by hands. Appearance:-

It is evaluated by visually.

8. Stability

The stability study was as per was med product prefer as per ICH guidelines. The maintained in different temperatures

Condition to check its Stability.

Collection of herbal drugs:-

The ingredients used in churn are fennel Mulethi, Triphala, Ajwaine, Kala namak flaxseed fenugreek or purchased from the markets or taken from laboratory then all herbal ingredients are dried and grounded using mixer.

Preparation of Herbal Churna:-

then collect all ingredient powder weight accurately and mix well try to triturated by motor pestle until homogeneous mixture is occurred then all powder passed into #85no SIEVE and then stored in air light container

Physio chemical evaluation:-

1. PH:-

Formulated herbal churn slash powder evaluated by taking five grams of churn/powder placed in 100 ml beaker allow the 10 ml of boiled and then cooled water stir fast to make suspension and measure the PH.

2. Moisture Control:-

4gm of formulated tune are placed in proceeding dish containing 6.8cm in diameter and 2.4 depth in it. Then placed the sample in hot air oven for drying at 100 degrees Celsius for five minutes.

Calculation % by mass = $100 \text{ml/mM} = \text{loss of mass}$ M = mass of the material taken for the task.

Rheological Evaluation:- 1. Flow property:-

The final wars taken and fixed with a clamp to this time then the graph paper was kept below the funnel and at the height between graph paper and bottom of the funnel was measured. Then 50 gm of powder was weighed and placed in funnel after on graph by funnel then measure the flow property.

Bulk density:-

20 gm of powder was accurately weighed and carefully introduced in 100 ml graduated in bracket (1 ml) measuring cylinder the cylinder was dropped at two second interval onto a hard surface three times from a height of 1 inch to equalize upper surface of powder then volume of powder was noted and the bulk density in gm/ml was calculated.

Tapped Density:-

20gm of powder was accurately weighed and carefully introduced into 100 ml graduated in bracket (1 ml) measuring cylinder. Measuring cylinder was fitted on the beast the height of about four inches. Number of strokes given until further bulk water change then volume of powder was noted and the tap density in gm/ml notes calculated as:

Tapped Density = wt. of Drug / Tapped Volume

Evaluation Table:-

Organic Evaluation:-

Sr. No	Test	Observation
1	Colour	Greenish Brown
2	Odour	Pungent
3	Taste	Salty
4	Abrasiveness	Good
5	Spread Ability	Good

6	Texture	Smooth, Fine
7	Appearance	Powder
8	Formability	Good
9	Stability	Stable

Physio-Chemical Evaluation:-

Sr. No	Test	Observation
1	PH	5.6
2	Moisture Content	1.9

Rheological Evaluation:-

Sr. no	Test	Observation
1	Flow Property	Less than 1cm
2	Bulk Density	0.58 gm/ml
3	Tapped Density	0.48 gm/ ml

LABEL

HERBAL CHURNA FOR CONSTIPATION	
Ingredients: Fennel:5gm Mulethi:5gm Triphala:2gm Ajwain:2gm Black Salt:2gm Flax Seed:2gm Fenugreek:2gm	Mfg.Lic.No.:2024 Batch No.: A Mfg.By.: Jaydeep Mfg.Date: 29-06-2024 Exp.Date: 29-06-2025
	STORAGE: Stored in Cool And Dry Place
	Price: 80rs/-
RASHTRIYA COLLEGE OF PHARMACY , HATNOOR	

Herbal churna formulation photos :



Sieving method Mortar pestle



Herbal churna

IV. RESULT AND DISCUSSION

In the present study formulation and evaluation of herbal churna powder the organoleptic properties showed as greenish brown colour characteristics Odor with sweet taste. The powder has 0.58gm/ml bulk density the angle of repos was determined to find out the flow property and it shows good flow property.

The ph. of the powder is 5.6 patch test also determines and no found irritation, redness and swelling. The poor flow ability and compressibility of the powder maybe due to the presence of fennel and other herbs. The study concludes that the churna has potential has a traditional ayurvedic medicine for constipation

V. CONCLUSION

Churna is a traditional ayurvedic formulation effective in treating constipation. The churnas herbal ingredients such as fennel were synergistically stimulated bowel movement and relive constipation. The formulations physio chemical properties though showing poor flow ability and demonstrate good mechanical strength and potential for effective treatment.

Churna offer a natural, safe and cost effective solution for managing constipation for minimal side effects. Further research and development can enhance the formulation properties and efficacy. Churna has a potential as a natural remedy for constipation, aligning with the principal of ayurvedic medicine.

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