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Formulation of Flavoured Isabgol Husk

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ABSTRACT: Isabgol has been popularly used as therapeutic agent for the treatment of constipation, diarrhea, irritable syndrome, inflammatory bowel disease, ulcerative colitis, colon cancer, diabetes,and hypercholesterolemia. Natural carbohydrates have been popularly used as a material for centuries in all kinds of pharmaceutical applications. It is the world's most abundant renewable and biodegradable polymer. Flavoured Isabgol husk powder comes in a variety of flavours, such as orange, lemon, and strawberry. These flavours are typically achieved by adding natural Flavouring to the powder, along with a sweetener such as stevia or Aspartame. Some manufacturers also add other ingredients, such as probiotics or vitamins, to create a more comprehensive supplement. One benefit of flavoured Isabgol powder is that it can make it easier to incorporate this healthy supplement into your daily routine. Another benefit of flavoured husk powder is that it can help mask the taste and texture of the plain powder.

KEYWORDS : Isabgol, Psyllium Husk, Plantago ovata, Ayurvedic, Powder .

I. INTRODUCTION

Psyllium Husk is processed from Psyllium Seeds which is an agricultural product known as PlantagoOvata, Sat-Isabgol, Ispaghula and many other name in different countries shown in figure 1.1 and 1.2. Psyllium Husk is a Wonderful product with varieties of uses in food products.It is used as medicinal herbs, crude drugs, unani, ayurvedic and pharmaceutical preparation. According to ayurvedic and unani systems, Sat-Isabgol is cooling, soothing, softening substance and is preventing Acidity.

Isabgol is one of the most important medicinal plants cultivated for its husk. Mucilage yields are about 25% or more of the total seed yield (by weight). Mucilage of Isabgol seed is often called Psyllium Husk. India ranks first in Isabgol production (98%) and the only international supplier of seed and husk. Isabgol is the leading foreign exchange producer of the country among medicinal plants (Rs.30 million dollars). It contains a large number of proteins and husk, which produce colloidal mucilage, which is valued for medicinal use and used in medicine systems Ayurvedic, Unani and allopathic. The herb is grown in Rajasthan, Gujarat, Madhya Pradesh, and Haryana every year. India is the leading producer and supplier of seed and husk in the world. The United States is the principal importer of Isabgol seed and husk. This crop is highly demanded export in the USA and Western Europe. Approximately 90% of its production is exported to those countries.

After prolonged researches Experts, Doctors and Scientists of the world have found that regular use of Psyllium Husk keeps one away from cancer & heart ailments. It reduces the cholesterol and also maintains the blood pressure at normal level. It is harmless as well as the cheapest remedy of the modern world which is available freely in India. The seed mucilage is used in cosmetics and as a basic stabilizer in Ice-cream. It is also useful for sizing purpose and for the chocolate preparations.

Combined with various chemicals such as powdered anhydrase, dextrose, sodium bicarbonate, citric acid and others, it has found its way as a safe remedy for constipation preparations. For constipations, it is taken with warm milk, fruit juice or plain water And for diarrhea, it is taken with curd.Madhya Pradesh states of india and are Isabgol is generally cultivated in dry deserty regions and hence mostly found in rajasthan and bought generally to Gujarat for further processing. Number of Laboratories and Drug Manufacturing Companies prepare their own formulations with Psyllium Husk as a raw material and sell them by their own brand names. They add various flavours like orange, lemon, pineapple, cardamom, cloves and ginger. Seeds are seperated from the plant and the seeds are converted to husk of powder to gain its medicinal use.

Husk and powder are generally found in following grades:

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- 85% PSYLLIUM HUSK AND POWDER
- 90% PSYLLIUM HUSK AND POWDER
- 95% PSYLLIUM HUSK AND POWDER
- 98% PSYLLIUM HUSK AND POWDER
- 99% PSYLLIUM HUSK AND POWDER

In which 99% husk is considered the purest form of husk and powder while 85% is considered the least.

Plantago Ovata Green Plant

1.1 HEALTH BENEFITS OF ISABGOL

As most people know, psyllium is a herbesious plant. Isabgol, ispaghula, or isabgula are other names for it. Psyllium husk and psyllium powder are both made from this herb. Because the seeds of the ispaghula husk are indigestible, they provide soluble fiber. In the production and export of psyllium husk powder, India dominates the global market. On the global market, it accounts for about 80% of psyllium husk powder. Due to a number of factors, India has the upper hand in the isabgol game. Isabgol has been used in Ayurvedic medicine for thousands of years.Sweet, astringent, cooling, emollient, mucilaginous, diuretic, laxative, anti-inflammatory, antidysentic, expectorant, aphrodisiac, roborant, and tonic are some of the properties of the seeds. Stomach disorders, tri dosha, burning sensations, habitual constipation, strangury, gastritis, chronic diarrhoea, dysentery, and colonalgia are some of the most common conditions treated with Isabgol husk. Furthermore, it is now used in the food industry to make ice cream, candy, and other confections.

- **Relieves Constipation**

Isabgol acts as a gentle laxative, promoting regular bowel movements and relieving constipation.

- **Manages Diarrhea**

The soluble fiber in isabgol helps absorb excess water in the intestines, aiding in the treatment of diarrhea.

- **Regulates Blood Sugar Levels**

Isabgol can help stabilize blood sugar levels by slowing down the absorption of sugar from the gut.

- **To Cure Piles**

Isabgol consumption is good for piles as it makes the stool bulky and prevents constipation

1.2 NUTRITIONALVALUE OFISABGOL:

The nutrients present in psyllium husk are as follows:

Nutrient	Percentage (%)
Protein	0.94
Albumin	35.8
Globulin	23.9
Prolamin	11.7
TotalCarbohydrate	84.98

Nutritional Value Of Isabgol

It is used in ice-creams and chocolates and other food products as a basic stabilizer. s. Husk was found in compressed tablets to be a good binder and to disintegrate.When treatment with and subsequently with hot caustic soda, the seed husk produces jelly that replaces agar-agar. Seed husk may be used in the case of lactating animals as a certain livestock feed if mixed with guar. The total seed that is used as bird feed is approximately 69% by weight of the DE Husked seed.

1.3 HOW TO CONSUME ISABGOL

- Mix 1-2 tablespoons of isabgol with a glass of water, juice, or milk.
- Stir well and drink immediately, as the mixture tends to thicken over time.
- Follow it with a glass of water to ensure the fiber reaches your digestive system

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- Start with a smaller dosage and gradually increase it as your body adjusts.

Diagrammatic presentation of use of isabgol is given below in (Figure 1.3 and Figure 1.4 and Figure 1.5) shows the different forms of isabgol generally consumed in market currently.

Flavoured Isabgol Husk

1.4 PRECAUTIONS WHILE USING ISABGOL

- **Consult a Healthcare Professional**

If you have any existing health conditions or are on medications, consult your doctor before adding isabgol to your diet.

- **Adequate Fluid Intake**

Be sure to drink plenty of water when consuming isabgol to prevent dehydration andhelp the fiber work effectively.

- **Avoid Overconsumption**

Follow the recommended dosage to avoid potential side effects and maintain a healthy balance in your digestive system.

1.5 SIDE EFFECTS OF ISABGOL

- Bloating and Gas
- Abdominal Discomfort
- Diarrhea or Loose Stools

Few minor unpleasant responses were reported by the studies. Minimum or irrelevant changes in the behaviour were observed.If consumed in the absence of sufficient fluid, it swells up later and may block the throat or oesophagus. In more complex situations, it may cause intestinal obstruction if we fail to maintain a recommended amount of fluid intake. High fibre diet may increase insulin sensitivity. While rare, some individuals mayexperience side effects when consuming isabgol. If you experience persistent discomfort, discontinue use and consult a healthcare professional.

1.6 RESEARCH ON ISABGOL

Effectiveness in Relieving Constipation

A study conducted in 2017 found that isabgol was effective in relieving constipation and improving overall bowel movements in participants.

Impact on Blood Sugar Control

Research suggests that consuming isabgol can help regulate blood sugar levels, making it beneficial for individuals with diabetes.

Found usefull in heart related disorders

Research also indicates that consuming isabgol regularly can help in regulating cholesterol levels,making it beneficial for individuals with cholesterol.

1.7 PLANT PROTECTION FROM PESTS

Major insect: White grub.
Major diseases: Powdery mildew; downy mildew and rhizoctonia wilt.

These are the most effective insects and diseases effecting the isabgol plants and lowering the yield of the harvest qualitatively and quantitatively.

1.8 GLOBAL SCENARIO OF PSYLLIUM HUSK MARKET

India’s average annual production is 120,000 tonnes, and in 2020-21 there’s likely to be negligible carry-forward stock India produces about 80% of isabgol husk powder in the world market and about 90-95% of India’s isabgol production is exported. ,Isabgol is extensively grown in Rajasthan, Gujarat Madhya Pradesh, Haryana and Punjab. Rajasthan accounts for 67% of total isabgol production in India followed by Gujarat. The total farm area under this wonder herb is 55,000 acres promoting its large scale farming. . Gujarat was previously monopolized by the production of Isabgol, with the cultivation of crops in the districts of Banaskantha, Kutch, Mehsana, and Jamnagar. Later, when demand began to raise, the farmers in Rajasthan and other states which also has an environment and soil for Isabgol similarly beneficial also began cultivating this crop.

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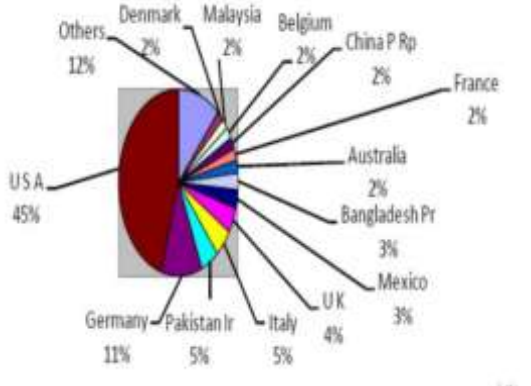

Countrywide Export Of Isabgol

The crop has a large export demand in USA and Western Europe and about 90% of the production is exported to these countries. Also, the growing of this crop in winter season will not affect the production of succeeding monsoon crop and thus fits well in the cropping system. The seed husk finds variety of industrial applications. It is the main constituent of a number of laxative preparations containing sodium bicarbonate and various flavor‟s used in modern medicine. India leads the global production as well as is the number one exporter in the world. India is the world leader in Psyllium in term of production as well as exports. The largest buyer of Isabgol from India is the United States, accounting for around 75% of the total husk exports from India. Germany is the largest single importer of seed. Psyllium research and field trials in the U.S. have been conducted mainly in Arizona and also in Washington. In India, Gujarat contributes 35% of world production of Psyllium Husk. In India Gujarat and Rajasthan states are the major producer states of psyllium. Psyllium husk is obtained from genus Plantago.

II. MANUFACTURING OF ISABGOL HUSK FROM ISABGOL SEEDS

2.1 CULTIVATION AND COLLECTION OF ISABGOL

2.1.1 Cultivating Isabgol

The herb is grown in Rajasthan, Gujarat, Pradesh, and Haryana every year. India is the leading producer and supplier of seed and husk in the world. The United States is the principal importer of Isabgol seed and husk. This crop is highly demanded export in the USA and Western Europe. Approximately 90% of its production is exported to those countries.

- **Climate Conditions**

Isabgol thrives in a hot and dry climate. It requires moderate rainfall and a temperature range of 15°C to 30°C.

- **Soil Type**

Isabgol can be grown in a variety of soils, but it requires well-drained loamy soil with a neutral pH range of 4.7-7.7.

- **Seed Rate**

The recommended seed rate for isabgol cultivation is 2 to 4 kg per acre. The seeds can be sown directly in the field or transplanted as seedlings.

- **Optimum Period For Cultivating Isabgol**

The most favourable period for sowing isabgol seeds is between October and November for best quality and quantity of yield

- **Benefits Of Isabgol Cultivation**

Cultivating isabgol can be a profitable and sustainable venture. Isabgol has various health benefits and is used to treat conditions such as diarrhea, constipation, and high cholesterol. The high fiber content of isabgol also makes it a popular ingredient in weight loss products.

Isabgol husk is the main product obtained while several other products are also obtained like:-

- Lali: Used as cattle feed.
- Chito: Used as Pig feed.
- Khakho: It is used to prevent ice slipping
- Golaisab: Used as cattle feed

2.1.2 Isabgol Harvesting Process

The optimum period for harvesting and collecting the isabgol seeds is between march and april to obtain maximum quality and quantity.

• Flowering	The isabgol plant should be harvested when it starts flowering. This is usually between 70 to 90 days after sowing.

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• Drying	The harvested plant should be cut and left to dry in the field. This takes about 8 to 10 days.
• Threshing	The dried plant is threshed to separate the seeds and husk. This process can be done manually or mechanically.

2.1.3 Cleaning and Storage Of Isabgol

Cleaning

The isabgol seeds and husk should be cleaned to remove any impurities. This can be done using sieves or winnowing machines.

Storage

The cleaned isabgol should be stored in a cool and dry place to prevent moisture and insect damage. It can be stored for up to a year if properly dried and stored,.

2.2 MANUFACTURING OF ISABGOL HUSK FROM ISABGOL SEED

1) Pre-Cleaning
2) Cleaning Section
3) Grinding Section
4) Winnowing Section
5) Powder Plant
6) Blender Section
7) Sterilization Section

2.2.1 Pre Cleaning:

The initial step associated with the cycle is cleaning of isabgol seeds. When the isabgol seed is gotten at Raw Material Reception deck it is weighted and then the crude isabgol seeds are cleaned by mechanical cycle through different strides of preparing. Pre-cleaner is the first step, wherein the machine with different cross section size network isolates the contaminations in the Isabgol seed parcel by size for example more modest than viz. soil, dust, little round other harvest seeds, and so forth just as those greater than Isabgol seed viz. refuse, straw, different seeds, and so forth A Vibrating separator is too utilized in the further line of pre-cleaning to get greatest pollutions and unfamiliar material isolated by size. In cycle of pre-cleaning, lighter than air pollutions (dust, earth and so forth) are likewise cleaned through an arrangement of air obstruction utilizing goal channel. The pre-cleaned Isabgol seed is presently moved to De-Stoner Machine through lift where the stones of same sizes of Isabgol seed are isolated by the head of gravity arrangement which is associated with another goal line. The crude isabgol seeds are cleaned by mechanical cycle through different steps of handling where no synthetics are utilized. There is a thorough ten phase in cleaning process of the seeds, which is trailed by de-husking of the seeds. 500 kg of isabgol seeds/hour can be cleaned at all stages.

Vibrating Sieve

2.2.2 Cleaning Of Seeds

The raw psyllium seeds are cleaned by mechanical process through various steps of processing where no chemicals are used. A rigorous ten stage cleaning process of the seeds, which is followed by the de-husking of the seed. All Stages can be cleaned 1000 Kg of Psyllium Seed per hour. Different sizes of sieves are used to clean different types of forign materials.

Magnetic separation: The Isabgol seed first passes by a magnetic separator that removes ferrous metal particles. It is also necessary to ensure that no metal pieces are in the finished product.

De-stoning: The aim of this process is that removes stones and other particles impurities from the given grains.

Gravity separation: The gravity separator separates products of same size but with difference in specific weight.

Colour shorting: The colour of grains varies depending on the variety. The colour sorter machine is used to sort grains by colour. The goal is to separate grains that are different in colour.

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Cleaning Section (Set Of Different Sizes Of Sieves For Separating Different Materials From Seeds)

Colour Grade Sortex Machine

2.2.3 Grinding And De-Husking Of Isabgol Seeds

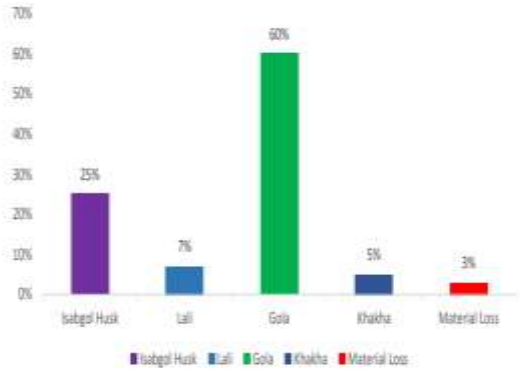
Interaction of de-husking isabgol obtains critical return of unadulterated and quality isabgol seed husk. The interaction join preparing flawless/perfect isabgol seeds in a plant which makes the husk to be partitioned by crash under conditions whereby the husk is broken and separated from the non-husk part of the isabgol seed without impressive breakage and size decline of the non-husk divide. De-Husking framework with automatic feeding having organized two plants in corresponding with seventy two grinders during which grinders are at 36" distance across. Magnets are organized in important spots. This unit can create 200 kg of mixture of de-husked materials every hour.

Grinders in Grinding Section

2.2.4 Winnowing And Husk Cleaning Section

In the above interaction of cleaning, an arrangement of desire utilizing medium pressing factor fan is utilized by permitting pipe/ducting associations with the different machines. The primary capacity of this framework is to separate lighter contaminations from husk (counting those created in cycle). All the vertical passing on measure is encouraged through utilization of lifts and the even passing on is finished by utilization of worm transports. Magnets are introduced in the middle of not many lines to isolate the ferrous particles present with the Isabgol seeds. Husk of 99% purity which is obtained after first milling of the seed fetches higher market price and further husk is removed in the subsequent milling process where purity and color gets diluted. The husk is passed through gravity separators for additional cleansing before custom packaging. This process is called winnowing.

Fumigation: The plant is equipped with a fumigation chamber, which works as per specific guide guidelines from specialists. The dose of the fumigant and treatment is done according to guidelines of the importing country and prerequisites of customers. Both crude isabgol seeds and the final isabgol items are treated according to the necessity of customers.



Production Ratio Of Huskand ItsBy Products

2.2.5 Powdering Section

These is mechanical process used to convert the psyllium form to powder form using huge powerful blades for obtaining powder of desired mesh size is termed as powdering.

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Powdering Machine

2.2.6 Blending Section

Blending is the process used to set the quality and quantity of the psylliun if required in powder mixed form. In these process huge blender is placed and specific quantity of powder and husk are placed in the tank which further blends the proper specific mixture of powder and husk as per customers requirements.

Blending Machine

2.2.7 Sterilization Of Finished Product

Heat is applied to the husk or mixture prepared at last to kill all the microbial contamination obtained before, during and after the process to get microbial free products.

Heat Sterilizer Inner View

2.3 LABORATORICAL TESTS

General Tests performed are:

- Description of Material
- Identification of material as psyllium husk/powder
- Loss on drying measures
- amount of water and volatile matter in the material
- Swell volume per gram of the material
- Light extraneous matter present in material
- Purity of the material
- Particle size

III. FLAVOURING OF ISABGOL HUSK

3.1 NEED FOUND FOR FLAVOURING OF ISABGOL HUSK

Isabgol husk powder is known for its ability to promote healthy bowel movements and improve digestive health. However, not everyone enjoys the taste of plain isabgol husk powder, which can be bland and gritty. That's why some manufacturers have started offering flavouredisabgol husk powder, which can be a more palatable way to enjoy the benefits of this natural supplement.

Flavored isabgol husk powder comes in a variety of flavors, such as orange, lemon, and strawberry. These flavours are typically achieved by adding natural flavorings to the powder, along with a sweetener such as stevia or Aspartame. Some manufacturers also add other ingredients, such as probiotics or vitamins, to create a more comprehensive supplement.One benefit of flavored isabgol powder is that it can make it easier to incorporate this healthy supplement into your daily routine.

You can mix the powder with water or juice to create a tasty beverage that you can enjoy at any time of day. Some people also like to add flavored isabgol husk powder to smoothies or other recipes to add a boost of fibre and nutrition.Another benefit of flavoured husk powder is that it can help mask the taste and texture of the plain powder. Many people find that the plain powder is difficult to swallow due to its gritty texture and lack of flavour. Flavoured versions can be more pleasant to consume, making it easier to stick to a daily supplement routine.

Artificial sweetners are used instead of sugar in order to make the formulation compatible to diabetic patients. Some formulation are also found that are formulated to be consume with milk in that formulations sodium bicarbonate and citric

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acid are skipped and the flavours generally found are sweet flavours like Rose, Strawberry, Banana, and Butterscotch.

3.2 PRODUCTS NEEDED IN FLOAVOURING

PRODUCTS	QUANTITY
Isabgol husk powder	65.50%
Citric acid	11.50%
Sodium bicarbonate	9.50%
Aspartame	1.15%
Orange flavor	1.60%
Sunset yellow edible colour	0.15%
Maltodextrin	10.60%

Products Generally Used In Formulating Of Flavoured Isabgol

3.3 DESCRIPTION OF PRODUCTS USED IN FORMULATION

1. Psyllium Husk or Psyllium Powder

These is the highest used product in the formulation as it is considered the main nutritional value adding component in the formulation

2. Citric Acid:

These is the excipient used to add sour taste to the formulation. Citric acid also lowers the PH of the formulation in order to enhance its shelf life. It also unintentionally maintains the PH of the stomach because as we know isabgol is fibre so it increases the PH of the stomach by absorbing the acidic secretions by the stomach.

3. Sodium Bicarbonate:

These is the excipient used to add the effervescence effect to the formulation in order to make the product more enjoyable by each series of ages because due to effervescent effect the formulation gives the feeling of consuming some carbonated soft drink which is found favourable to consume.

4. Aspartame :

It is the type of artificial sweetner used to add sweet taste to the formulation which makes it compatible also for diabetic patients. It also enhances the taste of the flavor used.

5. Flavour:

Many flavours are used to add particulate taste to the formulation like Orange, Lemon, Pineapple, Rose, Strawberry, Etc. Flavours are selected as per the liquid they are to be consumed with like milk, juice, or water.

6. Coloururing Agent

Edible colouring agents are used to make the feel of the formulation fascinating.

7. Maltodextrin

Maltodextrin as an artificial food additive or a carbohydrate supplement to boost energy levels and performance

3.4 PROCESS INVOLVED IN FORMULATION OF FLAVOURED ISABGOL

Generally according to present market criteria 3 processes are mainly found:

1. Weighing and sieving of products gathered:

The products are obtained in required quantity and passed through particular sieve sizes to obtain same particle size of each product differently to avoid lump formation.

Sieving Process

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2. Mixing of products obtained:
All the materials are placed in mixture mixing the materials evenly to obtain uniform mixing of the compounds.

Mixing Process

3. Packaging of formulated product:
The mixed product is filled in a drum with quantity aided sensor based hopper to properly dispense the formulaed powder.

IV. REVIEW OF LITERATURE

1. S. D. Katke et al., Review on Psyllium Husk (Plantago ovata): A Novel Superfood for Human Health: Commonly called Psyllium (Ispaghula Psyllium, Plantago ispaghula and Plantago ovata), has a long history of use as a dietary fiber supplement. Humankind has used Psyllium since ancient times; it has miraculous medicinal properties and health benefits that have been attributed to it throughout the ages. There are various health benefits of consuming psyllium. Its positive effects include relieving the symptoms of constipation as well as mild diarrhea. It improves digestion and cleanse colon, lower hypercholesterolemia, reduces the chances of heart diseases, helps in weight reduction, controls type-2 diabetes, treats inflammatory bowel disease (ulcerative colitis) and hemorrhoids. In older days it was also applied topically to treat skin problems and insect stings. In food and dairy industry, it is used as a thickening agent in the preparation of several food products. It has been popularly used as therapeutic agent. Dietary fibers from psyllium husk have been used extensively both as pharmacological supplements and food ingredients in processed food. The intent of this review is to summarize the functional benefits of Psyllium fiber consumption and to explore the potential application this fiber has for first-line dietary prevention of these diseases and disorders.

2. Prashant Purohit et al.,Isabgol: A Herbal Remedy: Isabgol husk, a natural edible polymer has been reported to be used in hemorrhoids, constipation, diabetes, ulcerative colitis. Besides its traditional use in constipation, husk canlower down the abnormal LDL level up to the normal which is the causative factor for different problems eg. Hypercholesterolemia, hypertension, low body working efficiency etc. Also, it has shown its cancer protective effect in different studies. All of the therapeutic applications of Isabgol husk are with negligible side effects/ or adverse effects. But the benefits in certain cases as on reducing the glucose level are still controversial and has not been totally studied or appropriately shown in type II diabetes. Hence, advanced research is essentially required in different proposed mechanism of husk for human health.

3. Rai Muhammad Sarfraz et al., Plantago Ovata: A Comprehensive Review On Cultivation, Biochemical, Pharmaceutical And Pharmacological Aspects :The basic aspire of current study was to review different aspects of Plantago ovata together with its cultivation, growth, biochemistry, pharmaceutical and pharmacological attributes. Plantago ovata belongs to family Plantaginaceae. It is an annual herb, indigenous to Mediterranean region especially Southern Europe, North Africa and West Asia. Different electronic databases (Medline, Science Direct, Springer link, Pubmed, Google and Google Scholar) were analyzed for the literature on medicinal properties of Plantago ovata. The literature analysis has revealed that Plantago ovata has been endowed with diverse pharmaceutical and pharmacological activities. It is widely used in numerous medicines owing to its both pharmaceutical properties such as mucilage, superdisintegrant, gelling agent, suspending agent as well as pharmacological actions like anti-diarrheal, anti-constipation, wound healer, hypocholestrolemic and hypoglycemic. Thus, Plantago ovata can be employed in the manufacture of a number of pharmaceutical products as well as a safe and efficacious ethnobotanical remedy in several health problems

4. Anju et al., A Versatile Unani Drug: Isabgol (Plantago ovata): Unani system of medicine is one of the Indian systems of medicine. The drug Isabgol aur Bazar-e-qatuna, botanically named as Plantago ovata (PO), belongs to family Plantaginaceae cultivated for their seed husk used in pharmaceutical and cosmetic industry. The word ‘Isabgol comes from the Persian lexicon ‘asap’ and ‘ghol’ meaning horse ear, owing to the shape of the seed. The mucilage of seeds is neutral in reaction, and neither it is altered by adding or precipitated by

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boiling with alcohol, nor it is changed by iodine, borax or perchloride of iron. This drug has been used extensively for its various therapeutic purposes such that laxative, astringent, carminative, lubricant, diuretic, antiinflammatory, antimicrobial and analgesic. In this review, an effort has been made to provide information on medicinal properties of Isabgol mentioned in Unani classical literature as well as in recent scientific studies.

5. Vipin K. Sharma et al.,Isabgol Husk: A Herbal Remedy for Human Health: The dietary fibers have positive effects on human health, both in the prevention and in treatment of chronic diseases. Isabgol husk (Plantago ovata) is a natural polymer of plant origin which is mainly composed of polysaccharide chain having (1>3) and (1>4)-ß–xylan system. It is used a bulk forming agent in constipation but due to some other beneficial effects; it can also be used in colorectal cancer, ulcerative colitis, hemorrhoids, diabetes, hypercholesterolemia etc. The present review represents the applicability of Isabgol husk for human ailments.

V. CONCLUSION

Isabgol is wildly use for treatment of constipation, diarrhea or many pharmacological disorders, It is Naturally occurring material which is converted into palatable flavoured husk by grinding and de-husking technique. The Formulation was successfully packed in air tight jar by Maintaining strict environmental conditions.

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