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A PHARMACOGNOSTIC REVIEW: PLANTAGO OVATA A MAGICAL SEED

Anushka S. Deore[1]*, Yogesh S. Wankhede[2], Hitesh P. Jagtap[3], Parth P. Jadhav[4], Ahtesham Y. Khan[5], Yash P. Kodilkar[5] and Avinash B. Darekar[7]

[1]Department of Pharmacognosy K.V.N.Naik Institute of Pharmaceutical Research & Education, Nashik, Maharashtra. India.

[2]Department of Pharmaceutical Chemistry K.V.N.Naik Institute of Pharmaceutical Research & Education, Nashik, Maharashtra. India.

[3,4,5]Student K.V.N.Naik Institute of Pharmaceutical Research & Education, Nashik, Maharashtra. India.

[7]Department of Pharmaceutics, K.V.N.Naik Institute of Pharmaceutical Research & Education, Nashik, Maharashtra. India.

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***Corresponding Author**
Anushka S. Deore
Department of Pharmacognosy K.V.N.Naik Institute of Pharmaceutical Research & Education, Nashik, Maharashtra. India.

ABSTRACT

The original objective of the present study was to review various aspects of cultivation, growth, biological, pharmacological and pharmacological properties of Plantago ovata Plantago ovata belongs to Plantaginaceae family. This annual herb is native to the Mediterranean region, mainly southern Europe, northern Africa and western Asia. Electronic databases (Medline, Science Direct, Springer link, PubMed, Google and Google Scholar) were searched for literature on the pharmacology of Plantago ovata the literature review showed that Plantago ovata has been assigned pharmacological and pharmacological activities. Due to its properties such as mucilage, superdistendant, gelling agent, suspending agent and medicinal actions such as antidiarrheal, anticonstipation, wound healing, hypocholesterolemic and hypoglycemic, it is widely used in many medicines. They can be protection in crises effectively involving ethnic plants.

KEYWORDS: Plantago ovata, Gelling agent, Disintegration, Stabilizer, Antibacterial,

Cytotoxic.

INTRODUCTION

Plantago ovata (Psyllium)

Plantago ovata is primarily produced as a dietary fiber in seeds that is commonly used as an extensive anticonvulsant; It can also act as a prebiotic (See later discussion). (See the article "Prebiotics and Inflammatory Bowel Disease" by Heather E. Rasmussen and Bruce R. Hameker in this issue.)

A multicenter, open-label, randomized, comparative study with P ovata seeds (20 g/d), low-dose mesalamine (1.5 g/d), and combination therapy was performed in 105 UC subjects who participated for 3 months or longer 24 Recurrence rates at 12 months in 3 groups were similar (40% vs. 35% vs. 30%, respectively; P. 12). = .67) although the test was not conducted for noninferiority analysis. Nausea and vomiting were predictable adverse events and may have confounded blindness.[2]

In 2002, the Institute of Medicine published a definition of dietary fiber that made a clear distinction between dietary fiber (Insoluble carbohydrates and lignin) and functional fiber (Isolated carbohydrates, an inedible with beneficial physiological effects on humans) between. to demonstrate proven health benefits in form Essential The physiological benefits of U.S. Food and Drug Administration recognition includes: reduction in cholesterol levels, reduction in blood glucose levels, reduction in energy intake, reduction in blood pressure, increased urine flow, mineral bioavailability to move effectiveness and standards established FDA If supported by clinical evidence of just one of these physiological effects, it is sufficient for the fiber to be accepted and labeled as a functional fiber Notably, *Plantago ovata* shells have 5 of the 6 effects mentioned above (Regulate water circulation, reduce cholesterol, improve glycemic control, reduce energy intake/help for one weight loss, and lower blood pressure) have been shown to be clinically effective in many clinical studies due to weight loss). In addition, *P. ovata* shells stand out as the only natural fiber that provides 5 major health benefits recognized by the Food and Drug Administration Furthermore, consumption of psyllium seeds has ulcerative colitis, irritable bowel syndrome, diarrhea a occurs due to ingestion, chronic constipation, chronic migraine, asthma, type 2 diabetes Measurable therapeutic benefits have been demonstrated in various cases It is important to emphasize that only psyllium mushrooms and fibers recommended by the American Chemical Society.[5]

Physical characteristics

Leaves 7.5–23 cm long, 0.5–1 cm wide, narrow, pointed, pointed or doll-shaped, opposite, finely entire or remote, glabrous at base, it is usually three-rooted with well-developed tap roots in the root structure Few secondary roots are present.

Classification

Kingdom: Plantae

Clade: Tracheophytes

Clade: Eudicots

Order: Lamiales

Family: Plantaginaceae

Genus: Plantago

Species: P.ovata

Fig. 1: ***Plantago ovata (Isabgol).***

Chemical contitutent

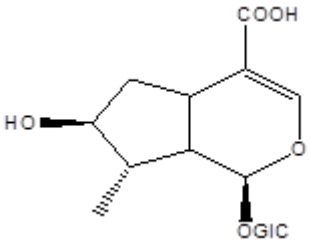

Fig. 2: 5, 6, 8 Epiloganic acid.

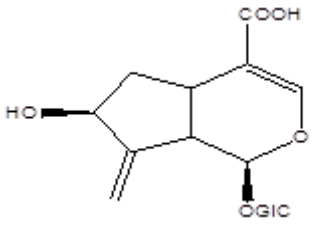

Fig. 3: Gardoside.

Mcroscopical characteristics

Epidermal cell of the follicle in lateral view with mucus, observed at 400x with acidified chloral hydrate glycerol solution. Parenchyma cells viewed under polarized light viewed at

400x with acidified chloral hydrate glycerol solution.[10]

Clinical overview use

Psyllium in Plantago has been used for GI conditions such as irritable bowel syndrome (IBS), constipation, diarrhea and constipation. It has also been used to treat excess cholesterol and its anticancer properties, and may be useful for type 2 diabetes prevention of cholesterol Although there are some clinical data that support the use of Plantago use in asthma, respiratory infections and hyperlipidemia though clinical data on other potential uses are lacking.[4]

Dosing:

Usual dose: 3 to 6 g/day of *psyllium*

Acne: 1 teaspoon to 1 teaspoon of powder or granules dissolved in 180 to 240 mL of water 1 to 3 times/day. The dosage varies from ingredient to ingredient; Check the product labels. The product is also available as capsules and wafers.

Glycemic control in type 2 diabetes: 6.8 to 13.6 g/day *psyllium* for 6 to 12 weeks.

Hyperlipidemia: 10.2 g/day of psyllium in 2 to 3 divided doses.

Respiratory diseases: 3 to 6 g/day in tea.

Contradictory statements

Because psyllium acts more as a laxative, avoid using it in patients with GI obstruction or urinary retention, as this can make these conditions worse. In addition, patients with difficulty swallowing should avoid *psyllium* because of the risk of choking and gastrointestinal obstruction.[6]

Pregnancy/lactation

Avoid experimentation. Adverse effects have been documented: placental function, placental ablation.

Interaction

Patients ordering prescription drugs should be advised to consult their health care provider before taking *psyllium* or any other natural remedy. See the Communications section.

Adverse reactions

Minor adverse reactions include abdominal pain, vomiting, nausea, vomiting, dyspepsia, and pelvic pain. More serious adverse effects include anaphylaxis, chest tightness, rash, watery

eyes, and occupational asthma; A giant phytobezoar (An entrapped fungus produced by *psyllium* seed roots) has also been reported.[8]

Toxicology

Pollen from *Plantago* contains allergenic glycoproteins that interact with concanavalin a as well as immunoglobulin E (IgE) binding components. IgE antibodies are expressed. IgE-mediated sensitization contributes to seasonal allergies.[2]

Scientific family

Plantaginaceae.

The study of plants

Plantago is a perennial grass that is distributed almost worldwide. About 250 species are recognized, of which 20 are geographically extensive, 9 intact, 200 in one region, and 9 in very narrow ranges P. lanceolata, P. major being the most widespread.1 Species of *Plantago* and herbs and tree-. plant-like, with basal, head or prickly leaves and inconspicuous flowers P. major can be up to 15.2 cm tall This species grows vigorously; *Plantago* is pollinated by the wind, making it easier to grow in the absence of bees and few other plantago plants. The plant is also very resistant to pathogens. P.S. Major produces from 13,000 to 15,000 seeds per plant, and the seeds are said to remain in the soil for 60 years. Plantago seeds can survive passage through the guts of birds and other animals, making them easily distributed.1 Psyllium seeds are small (1.5 to 3.5 mm), ovoid, boat-shaped, dark reddish brown, odorless and usually tasteless, and coated a mucilage is attached to various materials to aid transport.1, 3 *Plantago* herbs should not be confused with Musa paradisiaca or edible bananas. The synonym of P. arenaria is *Plantago ramosa* Asch.[8]

Uses in pharmacology

Gasto intestinal tract

Psyllium seeds are classified as a great remedy for acne. When mixed with water, it forms a paste. Inedible seeds augment to treat chronic constipation, while moisture acts as a mild solution comparable to agar or mineral oil American College of Gastroenterology Monograph on Management of IBS and Chronic Idiopathic Constipation (2014). state that soluble fiber, especially psyllium, increases water solubility and relieves all symptoms in mild IBS (mild, mild evidence) and is effective in the absence of idiopathic constipation sabea (strong, low-grade evidence) in the management of. The British Society of Gastroenterology's updated

guidelines on the management of irritable bowel syndrome (2021) strongly recommend the use of spagula *(psyllium)* as effective remedy for global symptoms and gastrointestinal IBS Pain in this.[8] The dose should start low (3 to 4 g/day) and increase gradually to avoid burns. Insoluble fiber such as wheat bran can worsen symptoms and should be avoided (moderate).[11]

Animal information

P.S. In a study investigating the antitumor activity of Owata, treatment with 10 mg/kg oral acetylsalicylic acid for 14 or 28 days against *P. aeruginosa*. Oral administration of 100 mg/kg of ovata with or without P. ovata attenuated acetylsalicylic acid–induced lesions. In particular, rabbits receiving acetylsalicylic acid alone showed an 18.7% and 23% increase in the percentage of caliciform cells in the duodenal epithelium after 14 and 28 days, respectively, whereas the control group (recipient rabbits, respectively). water only) increased by 13.5% These values in rabbits treated with P. ovata were similar to those in the control group: 11.8% and 13.15% at 14 and 28 days, respectively. These findings were statistically significant ($P < 0.05$) when compared with treatment with acetylsalicylic acid alone.[11]

Hospital information

In a study on 10 healthy volunteers testing the effect of a 3 g mixture of P. ovata root (dried *psyllium* seeds) administered 3 times daily, the mixture provided absorption time the intestine is reduced. Symptoms resolved within 2 days. In a study of 50 adult subjects, psyllium seed powder was as effective as a cellulose/pectin mixture as a massive acne treatment. The effect of various dietary fibers, including ovata seeds, on the function of the colon has been evaluated. Gastroprotective activity has also been reported from *Plantago* extracts (Polyholozidic substances).[13]

Excess fat

According to several reports, psyllium can help treat various types of excess cholesterol. Claims have also been addressed in cereal companies' products, including *Plantago* seeds, and claims that it reduces cholesterol. Polyphenolic compound from P. major leaves showed hypocholesterolemic activity, but in addition The mechanism of cholesterol reduction by psyllium may also be involved in increased cholesterol elimination in water in the bloodstream.[9]

Animal information

In animal studies, psyllium reduced blood cholesterol, cholesterol, and total triglycerides in rheumatoid arthritis rabbits. However, other animals may be less sensitive to the cholesterol-lowering actions of *psyllium.*

Anti-cancer drugs

P.S. The proposed mechanism of ovata-associated cancer resistance has been attributed to the production of butyric acid in the digestive tract, which induces apoptosis and affects the regulation of certain cancer genes.

Occupational asthma treatment use

Psyllium (*Plantago ovata*) is suggested as a treatment option for people with active chronic colitis (Low level of evidence, weak recommendation in support).[2] Non-use of methylcellulose is recommended as a substitute for psyllium (Limited evidence, strong supportive recommendation).

Medicinal properties of plantago ovata

Corresponding studies have shown that Plantago Major is effective as a wound healing agent, as well as anti-inflammatory, anti-diabetic, anti-inflammatory, anti- inflammatory, anti-inflammatory, anti-bacterial and anti-inflammatory Anti-fatigue and anti-cancer, is an antioxidant and scavenges free radicals.[3]

Benefits of *psyllium*

Psyllium is a common remedy for acne. It can also prevent constipation and help lower triglycerides, cholesterol, blood sugar and blood pressure. People can include this fiber supplement in their nutrition and consume it regularly as part of a healthy diet.[4]

Traditional uses

Plantago ovata (Psyllium) is used as a herb in Indian medicine (Ayurveda) which is rich in water-soluble fibers, exhibits biological properties in humans, medicinal and nutritional value, and can be added to others of Drugs for rheumatism.

In traditional medicinal systems, the dried seeds and stem are used as sedatives, expectorant.

A safe laxative especially useful in the tendency of nausea, chronic cold, constipation. Blonde psyllium seed powder has been used in European and Asian herbal medicine Chronic syphilis

dates back to the 16th century. It does not irritate the intestines and is specific Used when the pores are blocked by thermal fat. The results are like Cooling and moisturizing are recommended in feverish conditions and lovemaking kidneys, bladder and urethra.[6]

Crushed seeds are useful in ulcers and swellings. Yemen with cool results It is used as a wash for acne and wounds and as a hair dryer.

Industrial and Commercial utilization

The isolated mucilage powder of *P. ovata* exhibits faster drug dissolution and improved bioavailability, and it was stated that the isolated mucilage powder can be effectively used as disintegrants and superdisintegrant in tablet formulations. The literature confirms that seed husks of P. ovata have found application in the cosmetics industry. In India, most of the husk processing factories are located in Gujarat state. Isabgol husk commonly known in commerce as Bhusi or Sat isabgol, is available in market in various grades. The quality of husk is determined by its size, colour, and presence of red scrapings on the upper layer of the kernel, husk powder and dust. Husk of large size, white colour and free from red scrapings fetches good return. Seed husk is packed under three qualities viz., 50, 60 and 70 mesh clean; at present most of the exports consists of 70 mesh clean. India is the largest producer and the main supplier of pysillium seed and husk to the world market. USA is the chief importer of isabgol seeds and husk. The crop has a large export demand in USA and Western Europe and about 90% of the production is exported to these countries. It has also been noted that 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 flavours used in modern medicine. Due to the peculiar properties of the mucilage from the seeds.[12] In sum, such applications could be made in the food industry. It is used as a major stabilizer in ice cream and as an ingredient in chocolate and other food products. It is also used for sizing Purpose is that base in cosmetics.

Phytochemical properties of *plantago ovata*

The *psyllium* stem contains hemicellulose, which forms a large portion of the xylan backbone linked to arabinose, rhamnose, and galacturonic acid groups (Arabinoxylans). Herbal medicines Studies on Plantago varieties revealed their great versatility Secondary metabolites of iridoids, phenols, polysaccharides, sterols, alkaloids and cumatines useful as food supplements, chemotherapeutic agents for human diseases, and pharmaceuticals. The

seed is a polysaccharide (Cellulose, hemicellulose and lignin). Psyllium is classified as a mucous fiber because of its potency Ability to gel in water. This ability was developed by P.S. Egg seeds that work to retain moisture to prevent the seeds from drying out. Psyllium seeds contain more than 30% hydrocolloidal polysaccharide (mucilage) in the outer layer Seed coating, essential oil, tannins, aucubin glycoside (iridoid), sugars, sterols, and protein. This the water is colloidal in nature and its properties vary with the preparation conditions. It consists mainly of xylose, arabinose, galacturonic acid along with rhamnose and galactose. Two pieces of polycarp have been removed from the water. One of them is soluble Evaporation and leaching yield D-xylose (46%), aldobiuronic acid (40%), L-arabinose (7%) and insoluble residues (2%); Another fraction dissolves in hot water in bulk. Viscous solution that gels on cooling and yields trace amounts of D-xylose (80%), larabinose (14%), aldobiouronic acid (0.3%) and D-galactose on hydrolysis Also mucilage, a semi-dried bright yellow fatty oil (5%) in the seed occurs in small amounts active principle exhibiting action like aucubine and tannin and acetylcholine. Hour the fatty acid content of the oil is linolenic, 0.2; linoleic, 47.9; Oleic, 36.7; fingers, 3.7; stearic, 6.9; and lignoceric 0.8 %. The amino acids reported in BJ were valine, alanine, glycine, glutamic acid, cystine, lysine, leucine, and tyrosine. Isolated seeds appear to be starchy. The fruit contains bases, sugars, sterols and proteins. Wild-collected seeds contain less mucilage than cultivated seeds species.[14]

Distribution

Commonly distributed in Mediterranean coastal region, Sinai, Isthmus Desert, East Blue Country, North Africa. India, Iran, Pakistan, the countries of the Arabian Peninsula and the West Asia, extending to the Sutlej and Sind in western Pakistan.

They are also distributed throughout Arabia has a sandy-loam soil; usually in shady and cool places . They brought the crop India in the 16th century, when Muslims settled there in the Middle Ages. It is grown in India as a cash crop in Mehsana, Palampur and Banaskantha districts of North Gujarat, parts in southern Rajasthan and to a lesser extent in Patiala and Hisar districts of Punjab. The state of Haryana. Sparsely grown in parts of the West Pakistan.[6]

Studies on antioxidant capacity

Anti-inflammatory activity against two MMPs, MMP-2 and MMP-9, was developed in vitro using the zymogen electrophoretic method.

Examples of architecture

An inflamed excised tonsil sample was used as the source of the cough sample. Samples were minced, added to 5 ml of Tris (tris[hydroxymethyl] aminomethane) buffer, centrifuged at 3000 RPM for 15 min and stored at −20° for further use.

CONCLUSIONS

Isabgol is effective against arthritis and the mediators of arthritis. Due to increased industrial consumption and market demand, the cultivation of isabgol Profitable farming for farmers. The plant is grown in India and Pakistan during the year. For hundreds of years. It is desirable that the work to improve the plants of this crop is intensified so that.are producing varieties that can produce more of the seeds as well as the mucilage. Appropriate to improve the traditional method of seed milling and. Look for ways you can create new, high-value commercial products from seed and crop planting to support farmers and plant-based industries.

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