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RECENT ADVANCES ON SENNA AS A LAXATIVE: A COMPREHENSIVE REVIEW

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ABSTRACT

Senna is the common name for the ayurvedic herb Cassia angustifolia. In Sanskrit, it is also referred to as swarnapatri. It is a nonprescription laxative that has FDA approval. Its laxative effects are used to cleanse the bowels prior to diagnostic procedures like colonoscopies. Although Senna is an Arabic name, Sudan is its original home. It is a little herb that can reach heights of two to three feet. It is grown in Tamil Nadu, Andhra Pradesh, and Karnataka in India. Recently, commercial cultivation of it has begun in Jodhpur and Kutch (Gujarat) (Rajasthan). Tschirch and Hiepe conducted the first thorough investigation of the leaves.

KEYWORDS: Cassia angustifolia, laxative, Colonoscop seena leaves.

INTRODUCTION

Senna is the common name for the ayurvedic herb Cassia angustifolia. In Sanskrit, it is also referred to as swarnapatri. It is mostly used to treat skin conditions, as a laxative to relieve constipation, and as a blood purifier. It is endorsed by the World Health Organization and contains anthraquinone, a potent natural laxative (WHO). It is a nonprescription laxative that has FDA approval. Its laxative effects are used to cleanse the bowels prior to diagnostic procedures like colonoscopies. Although Senna is an Arabic name, Sudan is its original home. Arabian doctors introduced it and started using it to clear capillary congestion. It is a little herb that can reach heights of two to three feet. It is grown in Tamil Nadu, Andhra Pradesh, and Karnataka in India. Its

Taxonomical classification of senna

Cassia occidentali	
Kingdom	Plantae
Subkingdom	Tracheobionta
Division	Tracheophyta
Class	Magnoliopsida
SubClass	Rosidae
Order	Fabales
Family	Leguminose
Genus	Cassia
Species	Occidentalis
Botanical Name	*Cassia occidentalis*
Synonym	Senna occidentalis

Types of senna

There are 500 species in the genus Senna, and 26 of them, the genus Cassia, have been found to possess anthracene derivatives, either in their free form or as glycosides. among these, Due to their laxative properties and widespread availability, Cassia angustifolia (Indian senna) and Cassia acutifolia (Alexandrian senna) are recognised in several pharmacopoeias. Cassia fistula, Cassia obovata, Cassia dentate, Cassia sofara, Cassia sieberiana, Cassia podocarpa, and Cassia alata are the other species with a history of beingdiuretic.

Cultivation and Harvesting of senna

Senna is grown on around 25000 hectares of land in India, where it yields about 7500 tonnes of fruits and 22500 tonnes of leaves annually.Journal of Pharmacognosy and Phytochemistry, volume 350Senna is grown on well-tilled, level, richly clayed, partially irrigated ground. dirt pulverisation done with the aid of a plough. In February and March, the first sowing takes place, and in October and November, the second. Before planting, prepare the land by plugging, harrowing, and bringing the soil to a fine tilth. The last operation during land preparation is to apply Benzene hexachloride (10%) or aldrin (5%) at 25kg/hectare. This protects the young seedling from the attack of white ants and worms.

Sowing

On well-prepared ground, the seed can be preferable drilled in lines at a distance of 30 cm, at a depth of 1.5 to 2.5 cm. Red loams, alluvial loam, and fertile clay rising fields are where senna is primarily grown. The ideal pH range is between 7 and 8.5. It can only be grown in soil with good drainage because it is extremely sensitive to water logging.

Harvesting Processing & Storage condition

Sennosides are abundant in young senna pods. Between 50 and 90 days after seeding, the

senna plant develops leaf with increasing sennoside levels. The majority of the growing tips are cut off during harvest because the plucking is done by hand. At 90–100 days, a second picking is made, and between 130–150 days, a third. To minimise moisture, the harvested crop should be spread out in an open area in a thin layer. Light green to greenish yellow should be the colour of the dried leaf and pod.

Yield

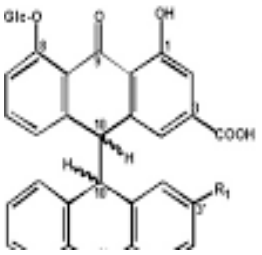
Under irrigated and good management conditions, it may yield, on average, 2,000 kg of dry leaves and 800-1000 kg of pod per acre. Under rain-fed circumstances, the yield may be in the range of 1000 kg/hectare of leaves and 400 kg/hectare of pods.

Chemical constituents

Anthraquinone glycosides: Sennosides A and B, two active crystalline glycosides found in senna, are present. Both of them were capable of being hydrolyzed by acid, yielding two molecules of glucose as well as Sennidin A and B aglycones. Sennidin B, which is the mesoform created via intramolecular compensation, has no rotation while Sennidin A is dextrorotatory. Sennosides C and D are also present; they are hetero-dianthrones with the aglycones rhein and aloe emodin, respectively. Aloe emodin mono- and diglucosides (aloe emodin-dianthrone diglycoside, aloe emodin-8-glucoside, aloe emodin-anthrone-diglucoside), as well as rhein mono- and diglucosides (rhein-anthrone-8-glycoside, rhein-8-diglucoside), were also discovered to be present in.

Naphthalene glycosides: Tinnevellin glycoside, a naphthalene glycoside, is also p).resent (0.3%

Miscellaneous: Senna includes kaempferol (3, 4', 5, 7-trihydroxyflavone), its glucoside (kaempferin), and isorhamnetin in the part of the flavonoid family. It also contains calcium oxalate, mucilage, resin, Saponins and Hydrocolloids made of polysaccharides.



Compound	R_1	R_2	10-10'
Sennoside A	COOH	H	*threo*
Sennoside B	COOH	H	*erythro*
Sennoside C	CH_2OH	H	*threo*
Sennoside D	CH_2OH	H	*erythro*

Basic chemical structure of sennosides

Medicinal properties of senna

Senna has a strong, potent flavour that is at once bitter, sweet, and aromatic. It is dry in nature and easy to digest. After digestion, it has a strong flavour. It has a slight purgative effect. Pitta anulomaka, which refers to removing vata through the anal pathway and pitta from the body, describes the properties of this herb. It is used as a laxative for the treatment of constipation and to evacuate the stool before gastrointestinal and colorectal region diagnostic examinations. The Ayurvedic and Unani medical traditions use the leaves and pods as an infusion because they have purgative effects mixed with carminatives and aromatics. Panch Sakaara Churna is one of the over-the-counter Ayurvedic substances.

Shtshakaar Churna and Yashtyaadi Churna are further compounds. Among.

Extraction method

Maceration

S. alata leaf powder (10.0 g) was macerated with 80% ethanol (100 ml). Repeating the extraction until it was no longer effective (as determined by Borntrager's reaction) was followed by combining, filtering, and drying the maceration extracts on a boiling water bath to produce a maceration crude extract.

Percolation

S. alata leaf powder (10.0 g) was soaked with 30% ethanol for 15 minutes. A percolator was filled with the wet material, and 80% ethanol was then added. Until the extraction was finished, the percolation was adjusted at a rate of 1-3 ml/min. To create a percolation crude extract, the extracts were combined, filtered, and dried on a boiling water bath.

Soxhlet extraction

300 ml of 80% ethanol were used to extract the powdered leaves of S. alata (10.1 g) using a soxhlet apparatus. The extraction was carried out until no more material could be extracted. The result was a soxhlet crude extract, which was combined, filtered, and evaporated to dryness on a hot water bath. The appropriate extraction technique for further extracting the leaf samples of S. alata would be one that encouraged the extract to have the highest content of total anthraquinones.

Uses of indian senna

1. Indian Senna's dried leaf is used as a purgative. The A dosage of 1-2 g of the leaf powder

is taken with hot water. water for cases of abdominal distention and constipation

2. When treating skin conditions, the affected area of the body is covered in a paste made from the leaves of the Cassia angustifolia plant and vinegar.
3. Rheumatoid arthritis, an infection with intestinal worms The powder of Senna leaf is administered in a 1-2 g of dosage to cause purging.
4. In the treatment of Hepatomegaly, Splenomegaly, and Jaundice, Ayurveda recommends Virechana (purgation therapy) to expel excess Pitta from the body using dried Senna plant leaves or pods.
5. Senna leaf or pod promotes the generation of Pitta in the liver when it is dried.
6. Blood is purified by Senna leaf consumption. A 500 mg dose is administered every day.
7. Hemorrhoids, irritable bowel syndrome, and weight loss are treated with it.
8. The anthraquinones of this herb can inhibit a variety of bacteria (staphylococci and Bacillus Coli)and dermatomyces (Microsporum audouinii) etc

Precaution

1. A lactating woman who consumes senna leaf will experience The breast-fed infant experienced some light purging.
2. Senna use is not recommended for those with severe dysentery or inflammatory colon diseases.
3. Senna dosage increases will cause acute purging, cramping in the abdomen, and other signs ofdehydration.
4. After using Senna, some people may experience nausea, excessive salivation, increased thirst, and dehydration-related symptoms. To lessen the aforementioned conditions, it is advised to combine senna with rock salt, ginger powder, and sugar candies.

Contradictions

Patients who have a senna or senna preparation hypersensitive reaction should not be given the herb. Not recommended for use in conditions such as intestinal stenosis, atony, appendicitis, inflammatory colon diseases (such as Crohn's disease, ulcerative colitis), abdominal pain with no known cause, and severe dehydration with electrolyte and water depletion. Senna is not advised foruse by anyone under the age of 12.

Special warnings

Before using senna leaves concurrently, patients who are taking cardiac glycosides, antiarrhythmic medications, medications that lengthen the QT interval, diuretics,

adrenocorticosteroids, or liquorice root must speak with a doctor. Senna leaves, like all laxatives, should not be used by people with faecal impaction or undiagnosed, acute, or persistent gastrointestinal complaints, such as abdominal pain, nausea, or vomiting, unless directed to do so by a physician. These symptoms could indicate an intestinal blockage that is either potential or already present (ileus).Medical supervision is required if used for longer than 1-2 weeks. Long-term use of stimulant laxatives may result in reliance, which necessitates higher dosages of the medication, an atonic colon with reduced function, and worsening of the constipation. Only if should senna leaf preparations be used.

Dosage & Dosage forms

15 to 30 mg of sennosides is the highest recommended daily dose to cure constipation. However, the right dose for each individual is the least amount necessary to produce a cosy, soft-formed action. Senna is taken orally in doses ranging from 500 mg to 2 gm of leaf or pod powder.

Sarivadyasava

It is a liquid ayurvedic medicine used to treat diabetes, gout, and skin conditions.

Ayulax

It is a specialised ayurvedic drug used to treat abdominal distention and constipation.

Kultab tablet

It is a medication used to treat haemorrhoids and piles.

Pylend tablet

It is a tablet that is used to treat constipation and piles.

Raktansoo syrup

A proprietary ayurvedic drug used to purify blood.

Overdose

The main signs and symptoms are intense stomach discomfort and diarrhoea, which results in fluidand electrolyte losses that need to be restored.

Pharmacology of senna

Senna pods and leaves have laxative properties. Sennoside A, B, C, and D are glycosides

found in leaves. From leaves and pods, two naphthalene glycosides have been isolated. Senna's therapeutic properties are imparted by anthraquinone. It seems that the aglycone component is what makes it work. There are two methods that the digestive tract can break down anthraquinone glycosides.

They can be immediately hydrolyzed by the gut flora in a manner akin to free active aglycone. As an alternative, the free aglycone can be taken into the bloodstream and later released into the colon when bile and the sugar moiety are present.

Antimicrobial activity of senna

The Cassia angustifolia extracts shown anti-microbial activity. various extracts, including ethanol, methanol, and petroleum The Cassia angustifolia plant's ether and aqueous solutions are pulling out. The antimicrobial effectiveness of different extracts was compared using the disc diffusion approach to Gram-positive Staphylococcus aureus and Escherichia coli are examples of bacteria.fungus, aspergillus, and Pseudomonas aeruginosa niger, Fusarium oxisporum, Aspergillus flavus, and Rhizopus stolonifer. Phytochemical analysis of the extract revealed the following: presence of proteins, carbs, flavonoids, and alkaloids Cassia angustifolia contains tannins and triterpeno.

Anti-fungal activity of senna

Senna has antifungal properties and inhibits the DNA of E. coli bacteria. Sennosides have an impact on the digestive system and cause diarrhoea. Senna has been demonstrated to cause DNA lesions in Escherichia coli cultures and to have antifungal properties.

Pharmacokinetic properties

The -O-linked glycosides (sennosides) are not broken down by human digestive enzymes or absorbed in the upper gut. They are changed into the active metabolite (rhein-9- anthrone) by the bacteria in the large intestine.Rhein anthrone is oxidised by oxygen into rhein and sennidins, which are present in the blood mostly as glucuronides and sulphates. 3-6% of the metabolites are eliminated in urine after oral administration of sennosides, and some are also excreted in bile.

Sennosides, sennidins, rheinanthrone, and rhein are mostly (90%) eliminated in faeces as polymers (polyquinones) and are only 2-6% unaltered. A maximal concentration of rhein (100mg/ml) was discovered in the urine after 7 days of oral administration of senna pod

powder (20 mg sennosides)to humans.

Carcinogenesis

There has not been any evidence of colon cancer after long-term antharcene drug administration.fully explained Regarding the relationship between the use of antharcene medications and the prevalence of colon carcinomas, study results are debatable.

Melanosis coli

Long-term use of senna may result in coli melanosis. precursors of the pigment melanin in Anthranoid laxatives may be the source of melanosis coli.

CONCLUSION

Senna are essential because there is no question about their economic worth. Senna contains significant amounts of sennosides, glycosides, and Malnutrition and other illnesses can be greatly reduced with the help of other nutrients. Senna preparation's effectiveness in the treatment of constipation and for bowel cleansing prior to radiological examinations or colonoscopies has beenassessed in clinical trials**.**

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