International Journal of Web of Multidisciplinary Studies
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
website: *http://ijwos.com*
Vol.02 No.12.
OPEN ACCESS
E-ISSN : 3049-2424
DOI: https://doi.org/10.71366/ijwos

Review on gokshura and leaf of life churna for kidney stone and digestive property

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Article Info

Article History:

Published:14 Dec 2025

Publication Issue:
Volume 2, Issue 12
December-2025

Page Number:
318-334

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Abstract:

In the few decades, there has been exponentially growth in the field of herbal remedies. Newer guidelines for standardization, manufacture, quality control and scientifically rigorous research will be necessary for traditional treatments. This traditional knowledge can serve as the powerful search engine that will greatly facilitate drug discovery. Standardization of herbal formulations is essential in order to assess the quality, purity, safety and efficacy of drugs based on the amounts of their active principles.

The aim of the present work is to standardize Gokshuradi churna. The churna makes this traditional drug more stable for long term storage and hence, easier to prepare. The "Gokshuradi churna" an Ayurvedic polyherbal formulation used in the treatment of is a polyherbal Ayurvedic medicine used as a diuretic and cardiac tonic. One marketed and one in- house formulations were used for the study. All the formulations were standardized on the basis of organoleptic characters, physical characteristics and physico-chemical properties. The set parameters were found to be sufficient to evaluate the churna and can be used as reference standards for the quality control/quality assurance purposes. The analysis and quality control of herbal medicines are moving towards an integrative and Comprehensive direction, in order to better address the inherent holistic nature of herbal medicines. It was observed that all ingredients of commercial samples matched exactly with that of authentic standards after performing the standardization as per who guideline.

Keywords: herbal medicines, Gokshuradi churna , Ayurvedic science , Churna

1. Introduction

In the long struggle to overcome the powerful forces of nature, the human beings have always turned towards plants for food, shelter, clothing, and healing. Even today herbal medicine plays an important role in the management of diseases. Though we are in 21st century where modern technology and scientific discoveries are ushering remarkable changes in our lives, nevertheless, the story of plants as herbal medicines defnitely continues to unfold, however, quietly and independently.Synthetic drugs are being prepared by keeping the natural drugs as standards but the efficacy of the herbal drugs cannot be imitated & hence 80% of the world population relay on natural

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drugs for treating their ailments. Ayurvedic science has got its rich heritage in India. People in India believe that natural products are safe compared to synthetic drugs. The development in these traditional systems of medicine leads to maintain proper quality of the product.

Churna is defined as a fine powder of drug or drugs in ayurvedic system of medicine. Drugs mentioned in patha are cleaned properly ,dried throughly, pulverized and then sieved the churna is free flowing and retain it's potency for one year ,if preserved in an airtight container

.Triphala churna ,Trikatuchurna ,Drakeshadi churna are some of examples.Churna formulation are similar to powder formulations in allopathic system of medicine.In recent days churna is formulation 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. Some standards already exist for Pancasama churna. However, the work deals with the details of following latest standardization guidlines involving Good Manufacturing Practices (GMP) for preparation of Ayurvedic Medicine. A blend of several herbs and spices make up the powdered mixture known as Churna. Depending on its intention in medicinal, beauty, or culinary use, its recipe varies. Common Churna ingredients include cinnamon, fennel, dried ground ginger, coriander and turmeric. In the Ayurvedic diet, Churna supplements are relied upon for many dietary and nutritional uses. The herbal mixture is thought to purify the blood and improve digestion when regularly used. Many Ayurvedic practitioners also use the blend to help prevent or treat inflammation. The

immune system may be improved by ingesting these herbs as well. Several Ayurvedic recipes call for the remedy. Various herbal and fruit extracts are sometimes combined with the herbal

mixture and sugar to create cough syrup elixirs known as sitopaladi Churna. Such solutions have also been known to be helpful in treating conditions such as indigestion, body weakness and chest congestion. Some people use the medicine for allergies as well.Ayurveda is considered by many scholars to be the oldest healing science. In Sanskrit, Ayurveda means "The science of life". Ayurvedic knowledge originated in India more than 5000 years ago and is often called the "Mother of All Healing". It stems from the ancient Vedic culture and was taught for many thousands of years in an oral traditional from accomplished masters to their disciples.The principles of many of the natural healing systems now familiar in the west have their roots in Ayurveda, including homeopathy and polarity therapy. Ayurveda places great emphasis on prevention and encourages the maintenance

of health through close attention to balance in one's life, right thinking, diet, life style and the use of herbs.The urinary system is consists of two major bean shaped kidneys, ureters, bladder and urethra. These bean shaped kidneys located just middle of the back and below the pairs of ribs. Kidneys transport water and body wastes from the circulating blood and then converts it to form urine. These are also useful for making a equilibrium balance of salts and other ions in the blood. The tubes of the urethras which are narrow in size; carry the composition of urine from the kidneys which transport to a triangle shaped chamber called bladder. At the same time, urine stored in a elastic, balloon type chamber called bladder which get flatten when urine is removed through urethra to out the body. The term 'Urolithiasis' is a global problem affecting human beingsfor ancient times and also called 'Nephrolithiasis' or kidney stones.

Composition of kidney stone:

A kidney stone is a cluster of crystals when they formed together to create a hard lump in one or both kidneys. They can vary in size from a few millimeters to several centimeters. The majority of stones will pass out of the body in the urine without any help, but some will require intervention to remove them. The Urinary stone have been developed with the crystals of phosphate, uric acid, magnesium ammonium phosphate with apatite and struvite. Among the urinary stones, calcium- containing stones have been found to about 75% of all urinary calculi, which may be present in the form of crystals of pure calcium oxalate (50%), calcium phosphate (5%) and a mixture of both compounds (45%). The diet can affect the concentration of certain substances in the urine and can affect the acidity of urine. The 24 hour urine collection of urine may found any of the given properties have increased risk of forming a stone:

High levels of calcium (hypercalciuria)

- High levels of oxalate (hyperoxaluria)
- High levels of uric acid (hyperuricaemia)
- Low levels of citrate (hypocitraturia)

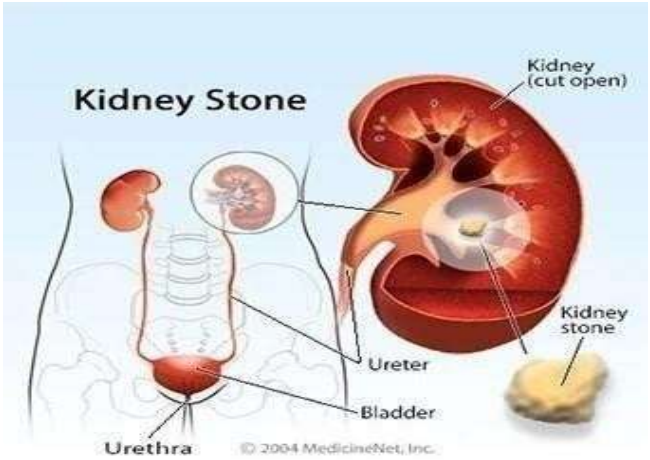


Fig No.1 Location Of Kidney stone Types of kidney stones :

There are four major types of stone are deposit in kidneys which are- calcium (75 to 85%), struvite (2 to 15%), uric acid (6 to10%) and stones of cystine (1 to 2%). The distribution and frequency of these stones is depending upon the geographical location of living being and population studied. Rarely, the long term used of drugs causes the kidneys stones which are about 1%

Calcium stones

The stones of calcium oxalate, calcium urate and calcium phosphate are associated with hypercalciuria which caused by hyperparathyroidism. People associated with disease, increased calcium absorption from the gut causes renal calcium or phosphate leak, hyperuricosuria, hyperoxaluria, hypocitraturia and hypomagnesuria developed.

Struvite stones

Struvite is composed of magnesium ammonium phosphate stones which grow to fill the collecting system (partial or complete staghorn calculi). This stage is developed due to chronic urinary tract infections which caused by Gram-negative urea-splitting rods including Proteus, Pseudomonas and Klebsiella species.

Uric acid stones

The formation of uric acid stones depend upon high purine intake drugs or high cell turnover (e.g. malignancy) which are mostly found in patients with gout. Uric acid stones mostly form in slightly acidic urine (pH 5.5). They are visible in nature and usually radiolucent on X-ray film.

Cystine stones

Cystine stones become due to having hereditary intrinsic metabolic disorder called cystinuria in which the re-absorption of cystine in the renal tubule is impaired. These stones could difficult to find on X-rays because of high sulphur content. In drug-induced stones, several drugs can participate in the formation of renal stones.

Drug-induced stones

Some drugs are also participating in the formation of renal stones which can be used for another disease. They are indinavir, atazanavir, guaifenesin, triamterene, silicate (antacids) and sulfa drugs. These stones are rare and are always seen on X-Rays (radiolucent).

Types of Churnas :

These are solid dosage form of medicament meant for internal
use These are two types:

- Simple Churnas:-

It contains only one medicament.

- Compound Churnas:-

Objective :

- To reduce blood sugar level.
- To used as anti- inflamatory.
- To treat kidney stone.
- To used as daietary supplement in western countries.
- To used to treat skin infection.
- To useful in urinary disorders.
- To used as anti-pyrectic property.
- To treat skin ulcer and sprains.
- To increases the level of testosterone in ma

2. Method Of Preparation

- Wash the herbs and sun-dry properly.
- Ground the herbs separately into a powder.

- The powdered herbs are to be subjected to direct sunlight for 3-4 days until there is no moisture left.
- Mix each of the 3 herbal powders in equal quantities.
- Pass the mixture through sieve no 100 to get a fine powder
- and remove impurities and hard particles
- Lastly it is stored in airtight containers for future use..

Drug profile :

Sr. No	**Common Name**	**Figure**	**Uses**
1.	Ghokshura		Anti- Inflammatory
2.	Leaf of life		Anti - Pyretic
3.	Mint leaf		Anti – Oxidant

Table No. 1

ABOUT THE PLANTS :Ghokshura Kingdom : *Plantae*

Phylum : *Spermatophyta*

Sub- Phylum : *Angiospermae*

Class : *Dicotyledonae* Order:

Geraniales Family :

Zygophyllaceae Genus :

Tribulus

Species : *terrestris*

Habitat :

T. terrestris is a taprooted herbaceous perennial plant. It can thrive even in desert climates and poor soil. It is one of the obnoxious weeds in thar desert. A network of fine rootlets arise from the taproot to catch soil moisture from. surrounding , which helps in survival in arid conditions.



Fig No. 2 Flowering twig of T.terrestris. Fig No. 3 Fruits of T.terrestris Morphology : The stems are greenish-red, upto 2m long, branched, radiating from the central axis and covered with fine hairs. The stems are generally prostrate but becomes erect in shade or when competing with other plants. The leaves are in opposite pairs with one of the pair is slightly smaller than the other. They are 3 to 7 cm long. Each leaf consists of 3 to 8 pairs of opposite, oblong- lanceolate leaflets. The size of leaflet being 5-15 mm long and 3-5 mm wide. The upper surface of leaflets is more darker than the lower surface. The joints as well a the axes of compound leaves can move in phototropic responses and bear C-4 photosynthetic pathway.The flowers are yellow, bear 5 petals and 7 to 15 mm in diameter.

They are borne on short stalks in the axils of the smaller of each pair of leaves. The flowers open in the morning and close or become shed their petals in the afternoon.

The fruit is a woody burr, 1cm in diameter which splits into 4 to 5 wedge-shaped segments-nutlets or burs. Each nutlet is hard and bears 2 to 4 sharp spines (10mm long and 4-6mm broad). These nutlets resemble to goat or bulls heads. The horny spines are sharp enough to puncture bicycles tires. They can cause painful injury to bare feet. Each nutlet contain 1 to 4 seeds. Seeds are yellow, having different shapes but more or less ovoid and 2-5 mm long.

Traditional Uses :

The Latin name Tribulus terrestris sounds like an earthy Roman emperor. Some people think it rules among muscle-building supplements.The fruits of T. terrestris L. have been used in traditional Chinese medicine for the treatment of eye trouble, edema, abdominal distention, emission, morbid leucorrhea, sexual dysfunction and veiling. Roots and fruits are useful in rheumatism, piles, renal and vesical calculi, menorrhagia, impotency, premature ejaculation. It is indicated for use in treating headaches, dizziness, premature ejaculation and spermatorrhoea (escape of sperm without orgasm). To Indian Ayurvedic practitioners the herb is called Burra Gokhru and is regarded as a diuretic, demulcent, antiseptic, anti-inflammatory and aphrodisiac.

Ancient Greeks used Tribulus terrestris as a diuretic and a mood-enhancer. In ancient Chinese medicine, it was used for a variety of liver, kidney, and cardiovascular diseases.

Botanical Description of Tribulus terrestris Linn :

It is small prostrate, 10-60 cm height; hirsute silky hairy shrub. It is a tap rooted herbaceous perennial plant that grows as a summer annual in hot and colder climates .

Stems

The stems radiate from the crown to a diameter of about 10 cm to over 1 m, often branching. They are usually prostrate, forming flat patches, though they may grow more in shade or among taller plants.

Leaves

The leaves are pinnately compound , in opposite pairs, 3 to 6 pair, upto 8 cm long with leaflets less than a quarter-inch long.

F**lowers**

The flowers are 4 to10 mm wide, with five lemon yellow petals. A week after each flower blooms, it is followed by a fruit that easily falls apart into four or five single-seeded nut lets. Flowers are usually silky, white or yellow, solitary, arises from the axils of leaves. Ovary briskly,style.short.and.stout.

Fruits

Fruits are globose, spinous or tuberculate; consisting of fine hairy or nearly glabrous, often muriculate and woodi cocci, each with two pairs of hard sharp spines, one pair longer than the other. Fruit often cling to clothes and bodies of animals and humans.

Seeds

The nutlets or "seeds" are hard and bear two to three sharpspines, 10 mm long and 4 to 6 mm broad point-to point. It is a trailing and spreading herb, densely covered with minute hair. Seeds are many in woodi cocci.

Uses :

- Relieves Urinary Disorders.
- Improves Kidney Functions.
- Boosts Sexual Health And Stamina.
- Treats PCOS.
- Boosts Libido.
- Promotes Cardiac Functioning.
- Aids In Digestion.
- Dismisses Pain.

CUTIVATION AND COLLECTION :

- Propageted By Seed .
- Fresh Seed Exjibit Seed Dormancy & Few Will Gerninate Imigiately After Developmennt.
- Seed Are Dormant Over The Autum And Winter Months And Germinate In Late Spring And Early Summer When Condition Are Moist.

- High Temprature Are Needed For Germination And Growth.
- Yellow Flower Can Appear Within 3 Weeks.
- Single Plant Can Produce Many As 400 Fruits.

Leaf Of Life :

Kingdom -*Planate*

Sub Kingdom- *Tracheobiont*

Division-*Magnoliphyta*.

Subdivision–

Magnoliophyta Class-

Magnoliopsido Subclass-

Rosidae.

Order-

Saxifragales.

Family-

Crassulaceae.

Genus- *Bryophyllum Kalanchoe*.

Species- *Bryophyllum , pinnatum*

Kurz.

Morphology :

Bryophyllum calcynium is used as Medicinal plant, ornamental and crassulencent herb. It is cultivation in houses, herbal garden, and field. The plant that grows all over the India in hot, humid and moist areas. The plant height is about 1-1.5m in long and it consist of opposite leaves and 10-20cm long glabrous leaves. The lower leaf is usually simple and upper one 3-7 foliat and are long-petioled. They are freshly dark green color and trimmed in reddish purple and Leaves blade are pinnately compound with 3-7 leaflets. Stem is hallowing four angled and usually branched, The flowers are 2-3 cm long and color of plant is reddish purple. Fruits are membranous follicles enclosed in the persistent papery calyx and corolla, seed smooth and ellipsoid. The session of Bryophyllum Calcynium plant flowers grow in November to March Fruit in April .it is astringent and sour in taste and sweet in the post digestive effect and it has hot potency.





Fig No.4 Whole Plant of Bryophyllum **Fig.No.5 Leave of Bryophyllum calcium calcynium**

Plant description

Life plant is a tall, erect, succulent perennial herb about 1m- 2m in height. It is an herb that appears commonly throughout India, but also is found in other parts of the world, such as Pakistan, Nepal, Brazil and the United States. Various medicinal uses are associated with the leaf of life. Plant grows well in tropical, sub-tropical and warm temperate climatic zone and does well in ordinary soil, enriched soil and mildly acidic to mildly alkaline soil. The plant has hollow stem, red or green in color, thick, flexible and short, glabrous and succulent.

Leaves

The leaves are 5-25 cm long and 2-12cm broad. Lower parts have simple leaves and upper parts have complex joint leaves, having 6-7 leaves in opposite pattern. The stalks (petioles) are 2-10 cm long. These leaves have an oval or narrowly oval shape and rounded tips (obtuse apices). The terminal leaflet is significantly larger than the others. From the scalloped margins of the leaves, new plants form often on becoming detached from the plant.

Uses :

- **Treats Kidney stones:** In case of kidney stones, give 40-50 ml decoction of whole plant twice a day. You can also give the decoction with 500 mg shilajit and 2 gm. of honey mixed in it. Give this twice a day, it cures bile stone easily.
- **Useful in Urinary disorders:** Give 5 ml juice of its leaves to the patient suffering from thirst and any disorder related to urinary system. It is a very good and effective cure. In case of urine related disorder in men, give 40- 60 ml of its decoction with 2

gm. honey mixed in it. Give this twice a day.

- **Helpful in Boils:** Slightly warm its leaves and crush them. Tie it as poultice on the affected area. It cures boils, redness and swelling too.
- **For Hypertension:** Give 5-10 drops of the extract of its aerial parts. It is beneficial in controlling blood pressure.
- **Curbs Leukemia:** Give 5-10 drops of the extract of its aerial part, twice a day. It is beneficial in blood cancer.

CULTIVATION AND COLLECTION:

- In temperate regions, *Kalanchoe pinnata* is grown as an indoor ornamental plant. Like most succulents, it cannot survive hard frost and will not thrive in environments in which the temperature drops below 10 °C (50 °F). It favours well- drained soil, the roots being otherwise susceptible to rot. In the tropics, *K.*

  pinnata is grown outdoors in gardens, from which it may escape to become naturalised - often as an invasive weed.
- Most species of Bryophyllum do not tolerate frost, but can be grown in pots indoors without any problem. Just avoid cold drafts. Place the pot in the sun behind a window facing south or west or in a well-lit area. Some semi-hardy species such as Bryophyllum laxiflorum tolerate a light frost, from -4 to -8 ° C.

Mint Leaf :

Kingdom :*Plantae* Order :*Lamiales* Species :*Menthe*

Binomial name :*Mentha piperita*

Plant description :

Rhizomatous perennial herb, about 30 to 90 cm in height; stem square erect or ascending, branched, upper portion always quadrangular; rhizomes wide-spreading, fleshy with fibrous roots; leaves 4 to 9 cm long and 1.5 to 4 cm broad, opposite, petiolate, ovate-oblong to oblonglanceolate, serrate, pointed, dark green on the upper surface; flowers 6 to 8 mm long, purplish, occur in thick, terminal, spicoid racemes of verticillasters; calyx tubular with 5 sharp, hairy teeth, purplish, irregular; corolla four cleft; stamens 4, short; ovary four celled, style projecting ending in a bifid stigma; fruit consists of four ellipsoidal nutlets.

Leaf

Leaves being the most important part from which oil is extracted, the anatomical characters are relevant. Upper epidermis composed of large, clear epidermal cells with sinuous, vertical walls and possessing few or no stomata, few glandular trichomes present; palisade parenchyma, comprising a layer of columnar cells rich in chloroplasts;spongy parenchyma, of 4–6.layers.of irregularly shaped chloroplastid- containing cells and intercellular air-spaces. Lower epidermis of small epidermal cells with sinuous, vertical walls and numerous diacytic stomata; in the region of veins and midrib, exhibits non-glandular and glandular trichomes as outgrowths; nonglandular trichomes uniseriate, papillose, 1–8-celled; glandular trichomes have 1–2-celled stalk and 1–8-celled glandular head containing the essential oil. Calcium oxalate.crystals.absent.



Fig No. 6 Mint leave

3. CHEMICAL CONSTITUENTS

Menthol is the primary component of the essential oil of peppermint and is mostly responsible for the agents anti spasmolytic effects. Various constituents of peppermint oil are limonene (1.0-5.0%), cineole (3.5-14.0%), menthone (14.0-32.0%), menthofuran (1.0 -9.0%),

isomenthone (1.5-10.0%), menthyl acetate (2.8-10.0%), isopulegol (0.2%), menthol (55.0%), pulegone (4.0%) and carvone (max. 1.0%).

Uses :

Helps relieve indigestion: Pudina Leaves stimulate the enzymes in our digestive system. It has antibacterial and antiseptic properties that relieves stomach infections, indigestion and other

symptoms. The presence of Menthol enhances the nutrition of mint leaves by acting as an anti-spasmodic remedy.

Helps with Oral Disorders: If you have had strong, spicy food which resulted in a bad breath, chewing on a couple of Mint leaves can help freshen your breath. In fact, many smokers chew mint flavoured gum or candy to hide the smell of tobacco in their breath. Using toothpaste with Menthol can help you keep your mouth cavity clean besides helping to clear the plaque on your teeth.

Acts as a brain tonic: Studies done on mint leaves have concluded that mint leaves help in staying alert. They are also known to improve memory power and cognitive functions.

Increases Immunity: Mint contains a lot of antioxidants and vitamins to boost your immunity. What's more, it also safeguards your body against cancer causing tumour formations.

CULTIVATION AND COLLECTION:

- Mints are vigorous perennials that thrive in light soil with good drainage For growing outdoors, plant one or two purchased plants (or one or two cuttings from a friend) about 2 feet apart in moist soil. One or two plants will easily cover the ground. Mint should grow to be 1 or 2 feet tall.
- The crop planted through stolons in January and February is harvested twice i.e., in June and October months. It is harvested at flowering on dry sunny days. The crop maturity is determined by distillation of crop sample in Clevenger's apparatus. If it gives is reached in 105-110 days of sprouting for first harvesting and 80-90 days after the first cut is taken for the second crop.

Evaluation Parameters :

Parameter used for standardization of churna:

Method	**Evaluation Of Parameter**
Authentication	Parts of plants like leaf , flower , root , stolon.
Morphology **O**	Odour , Taste , Size , Shape, special Feature.

r Organoleptic Evaluation	
Microscopy Evaluation	Leaf content , trichomes , stomata , quantitative microscopy
Chemical Evaluation	Chemical test , chemical assay , phytochemical assay.

Physical Evaluation	PH , moisture content , ash value , melting point , crude fibre content etc.
Biological Evaluation	Microbial content , pesticide contamination
Flow property parameter	Angle of repose Hausner Ratio Carr's compressibility index
TLC	

Bulk Density (Vb) : Mass / Bulk Volume (1)

Tapped Density : Mass / Tapped volume (2)

Carr's Index (I) : Mass/Tapped Volume - Mass/ Bulk Volume ×100(3) Mass /Tapped Volume

Hausner's ratio (H) : Mass / Tapped volume(4)

Mass /Bulk VolumE

4. CONCLUSION

For the quality assured herbal product, the standardization is required. In standardization, the above mentioned parameters i.e. authenticity, biological parameter, chemical parameter, physical parameter and analytical profiling gives the quality assured herbal product. HPTLC tool is mostly used for identification of the compound. Other instrument like IR spectroscopy, UV-VIS spectroscopy, HPLC, Mass spectroscopy and NMR spectroscopy are also used in standardization.On the basis of

multifaceted potential of Tribulus terrestris and Pedalium murex it is concluded that these two species are underutilized and currently used for the health maintenance only by Ayurveda, Unani, and traditional practician. The plants have industrial value as fruits of these plants are dealing as raw material in Indian herbal mandies which is used by herbal medicines producers in preparations of medicinal formulations. Nowadays, people are more conscious about their health and more emphasizes is being given on plants products due to lesser side effects on health and reduced cost, hence these plants may have high demand in near future as a raw material for pharmaceutical companies. As the plants are grown in sandy marginal lands, so it will generate additional source of income for the rural population. Besides medicinal references, researchers should emphasis on breeding programmes, plant tissue culture and nanotechnology aspects of these crops. For commercial cultivation and full potential utilization of these two species for human welfare, further studies for the development of suitable agrotechnology/package and practices is required. Gokhru is mainly propagated through seed, hence there is a need to develop seed as well as field standards for quality seed production, and export of seeds for international trade. The present review is a bunch of information assembled from different published research papers which will be helpful in developing new formulations and increasing the production of these crops in future.

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