



Review Article

A Review On Acacia Arabica And It's Medicinal Uses

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ABSTRACT

Over the past few decades, there has been a significant rise in the usage of herbal medicine. Herbal medicines have been the mainstay of traditional medicinal systems like Unani, Ayurveda, and Siddha for diagnosing, treating, and curing a wide range of ailments and physiological abnormalities. A significant majority of the world's population still largely relies on the conventional medical system, particularly in impoverished and undeveloped countries. The practical and economical phytochemicals present in medicinal plants are regularly used in the development of medications to treat a variety of diseases. Herbal medicines are being utilized more and more frequently in medicine since they are less expensive, easily accessible, and of natural origin with greater safety margins and fewer or no side effects. According to the Unani school of medicine, babool (Acacia Arabica) provides therapeutic advantages for a number of human body systems. The bark, root, gum, leaves, pod, and seeds of the plant are only a few of the parts that have medicinal applications. Acacia arabica, popularly known as babool, has a wide range of ethnobotanical and Unani traditional uses. The current study intends to emphasize these uses as well as babool's phytochemical and pharmacological qualities. The medicinal plant *A. nilotica* is rich in the phenolic compounds protocatechuic acid, gallic acid, pyrocatechol, (+)-catechin, (-)epi-gallocatechin-7-gallate, and (-)epigallocatechin-5, 7-digallate. The gum, immature pods, seeds, fruits, flowers, and bark of this plant, among other parts, exhibit cytotoxic, anti-cancer, anti-mutagenic, spasmogenic, vasoconstrictor, anti-pyretic, and anti-asthmatic qualities. Additionally, they exhibit inhibitory actions against Hepatitis oo and anti-platelet aggregation, anti-plasmodial, molluscicidal, and anti-fungal properties.

INTRODUCTION

Babool, commonly known as acacia arabica, is a member of the leguminosae family. A perennial, spiky tree of medium size known as babool is widespread throughout India(1). Babool is

sometimes referred to as the "Healing tree" since all of its parts—including the bark, root, gum, leaves, pods, and seeds—are utilized in many types of medicine. The Babul tree serves several purposes and offers numerous advantages, making

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it a vital component of the local environment and civilizations. The Babul tree has a long and illustrious history in India, where it has long been valued for its wide range of applications and therapeutic capabilities. The Babul tree was listed as a medicinal plant with diverse therapeutic powers in ancient Indian scriptures, such as the Vedas and the Charaka Samhita. Ayurveda recommends chewing on small pieces of fresh babool bark because of its astringent properties, which help to strengthen gums and teeth while addressing oral health issues. Due to its Keshya characteristic, babool also aids in the control of diarrhea by reducing intestinal motility. By encouraging the elimination of mucus from the airways and easing breathing, it also relieves the symptoms of a cold, cough, and sore throat. Babool gum powder, which has analgesic and anti-inflammatory qualities, can be taken with water once day to help with joint discomfort. Due to its antibacterial properties, applying a paste made of Babool leaf powder and coconut oil helps treat mouth issues like plaque development and gingivitis.

Synonyms of babool

Acacia nilotica, vachellia nilotica, gum arabic tree, Egyptian acacia or thorny acacia.

Morphological description

It is a rather small tree with a spreading crown and a nearly evergreen short trunk. Dark brown to practically black in color, the bark is deeply fractured or longitudinally fissured. The primary rachis bears glands, and the leaves are bipinnate. There are various stipular spines. Leaflets are glabrous and sessile. Golden-yellow, fragrant flowers form supplementary clusters of 2–5 heads and are crammed into long-stalked, globose heads. Pods are 7.5–15.0 cm long, stalked, flat, and constricted between the spherical seeds. In India, three subspecies are recognized(2).

1. TREE



Fig no:1 Babool Tree

Babool is a fantastic source of essential vitamins, minerals, and nutrients. Iron, manganese, protein, zinc, and important amino acids including valine, histidine, isoleucine, threonine, lysine, and leucine are just a few of the nutrients found in babool. Babool has a lot of tannin and polyphenolic chemicals in its bark and pod. A variety of plant components, including galactose, aldobio uronic acid, arabinobioses, and the minerals calcium and magnesium, are found in the plant's gum. Flavonoids such kaempferol 3-glucoside, isoquercetin, and leucocyanidin are abundant in babool tree flowers.

2. LEAVES

Babool leaves are a miraculous remedy for dry skin issues like flakiness and irritation. Babool leaves' potent anti-inflammatory, antiseptic, and antifungal effects are helpful in treating a variety of skin diseases. Babool's sensitive leaves may be useful for curing mouth ulcers.



Fig no:2 Leaves

3. GUM

Babool gum powder, which has analgesic and anti-inflammatory qualities, can be taken with water once day to help with joint discomfort. Babool gum powder, which has analgesic and anti-inflammatory qualities, can be taken with water once day to help with joint discomfort.



4. FLOWER

The powder form of flower, leaves, bark, pod, and wood may be used for leucorrhoea.



5. FRUIT

The immune system of the body is strengthened by babool fruit. Babool is frequently called the "Healing tree" since all of its parts, including the bark, root, gum, leaves, pods, and seeds, are used in various forms of medicine. Ayurveda astringent characteristics of fresh babool bark, which serve to strengthen gums and teeth while addressing oral health issues, suggest chewing on little pieces of it.



6. BARK

Fresh babool bark's astringent characteristics, which assist to strengthen gums and teeth while addressing oral health issues, are why Ayurveda advises chewing on little bits of it. Bark toughness It is great for your teeth. Furthermore, it strengthens immunity.



7. SEED

Babool also helps to reduce diarrhea by lowering intestinal motility as a result of its Keshya property. By encouraging the elimination of sputum from the air, it also relieves the symptoms of a cold, cough, and easy breathing



USES OF BABOOL:

Babool's potential benefits in treating Alzheimer's disease:

The acetylcholinesterase enzyme was found to be inhibited by babool in a 2009 study by Crowch and Okello. The enzyme acetylcholinesterase, which degrades the neurotransmitter acetylcholine, may be useful in the treatment of Alzheimer's disease. However, in order to demonstrate its efficacy against Alzheimer's disease, human studies are necessary. Because of this, it's imperative to seek medical advice before using any other herbs for Alzheimer's than babool(4).

Babool's potential as a malaria treatment

Malviya et al. (2011) tested the water extract and ethyl acetate extract of babool for antimalarial activity in an animal model, and both showed antimalarial activity. The strongest anti-malarial activity against the malaria parasite *Plasmodium falciparum* was discovered in the babool extract(5). However, instead of using humans in these investigations, animals are used. We therefore need more details about its safe application to humans.

Possible applications for babool in digestion

Various animal models that babool was studied on may have indicated it has anti-ulcer potential. The antiulcer a However, because these experiments were not conducted on humans, this research is insufficient. Therefore, more research on people is needed before babool may be suggested as a possible aid in digestion. As a result, it's crucial to consult your doctors first and only use babool as medicine. ction of babool may be caused by its phenolic components. Animals were used in a 2005 study by Agunua et al. to examine the anti-diarrheal effects of babool. Babool initially caused the animals' jejunum (the middle section of the small intestine) to relax before contracting it. In another animal model, it demonstrated a 100% reduction from diarrhoeal illness. As a result, it

might suggest that babool is useful for treating diarrheal symptoms(4,10).

Potential diabetes benefit

Wadood et al. showed that the seeds of *Acacia arabica* contained a component or substances that caused a normoglycemic person's blood glucose level to drop. however not in rabbits with alloxan-induced diabetes, indicating that the release of insulin from pancreatic beta-cells was the mechanism of action. When administered as a decoction (20 mg/kg), the bark significantly decreased blood glucose levels in mildly alloxonized diabetic rabbits after they fasted for eighteen hours. In normal rats, the *A. nilotica* ssp. *Indica* fed for one week was seen to have a hypoglycaemic impact (blood sugar decreased by 25.05%) but did not demonstrate any substantial hypoglycemic impact in rats with alloxanized diabetes (blood sugar decreased by 2.14%). Legumes' hypoglycemic effect resulted from their direct or indirect stimulation of the islets of Langerhans' β -cells to secrete more insulin.(6,7)

Applications of babool for the heart

Animal models and people were used to assess babool's antihypertensive effects (Gilani et al. 1999). It was discovered that the babool extract had antihypertensive and arterial blood pressure-lowering properties. Omaima et al.'s 2016 human investigations revealed that people with type 2 diabetes had lower systolic and diastolic blood pressure. This shows that babool may be an effective medication for lowering blood pressure, particularly in diabetics. These studies, however, fall short, and more fresh research is needed. Therefore, in order to stay informed about the most recent advantages of any herb, individuals should seek medical counsel(4,10).

Potential use for mouth ulcer

Babool's sensitive leaves may be useful for curing mouth ulcers. It might be helpful to strain the teeth, halt goo bleeding, clean the mouth, relieve discomfort, and all of these effects. still, mortal



trials are necessary to corroborate its efficacy. In order to resolve the forenamed problem, people should visit their croakers and only use them. Indeed while there are exploration demonstrating babool's advantages in a variety of situations, they're inadequate. also, further exploration is needed to determine the full compass of babool's health advantages for people. also, every existent may reply else to these shops. thus, before using babool for any medical condition, it's pivotal to speak with a croaker(10).

Babool's potential as a cancer treatment

Meena et al. (2006) tested the gum, flower, and leaf extract of babool for anticancer activities in an animal model. Babool was discovered to have an impact on tumor development and to have a cytotoxic effect on human cancer cell lines. The use of babool was found to inhibit the growth of tumours in animal research. Cancer, however, is a serious medical condition that may require thorough diagnosis and treatment. Therefore, it is preferable to visit a doctor first. Additionally, more study is necessary to get a precise babool scope for issues connected to cancer in people(5).

Antimutagenic

Using Escherichia coli WP-2 at a concentration of 5 mg/plate, the methanolic bark extract reduced the UV-induced mutagenicity. That reduction could be the result of an enzyme process that reversed the pyrimidine dimmer production(8).

Antipyrolytic

Inhibition of tryptic (via benzoyl arginine hydrolysis) and total proteolytic (caseinolytic). Ten varieties of legume seeds were investigated for their chymotryptic (by hydrolyzing acetyl tyrosine ethyl ester) and p-nitroanilide (by hydrolyzing acetyl tyrosine) effects on human and bovine pancreatic proteases. The extract from acacia seeds exhibited a more marked effect on human trypsin and chymotrypsin, and it was more successful in suppressing the bovine system's overall proteolytic activity(9).

How to Use Babool:

Use Babool as:

- Powder
- Decoction
- Little Bark
- Juice Of Babool Leaves

Before consuming babool, one should always seek the opinion of an Ayurvedic doctor. Additionally, we advise against substituting or stopping your current prescriptions with any ayurvedic or herbal remedies without first getting the medical guidance of a licensed physician. According to your health situation, they will advise you on the herb's ideal form and dose.

Babool adverse effects:

Regular babool consumption may cause various stomach-related side effects.

If taken improperly, babool could injure the chest, rectum, and colon in addition to possibly causing constipation. However, seek quick medical assistance from your doctor who prescribed it if you have such side effects. To help you deal with the adverse effects, they will offer you the best medication they can.

Babool precautions:

It's possible that consuming babool in moderation is safe. However, general safety measures must be taken. Babool should be avoided during pregnancy and breast-feeding. Its safe use during pregnancy and breast-feeding is not supported by enough data.

Children and the elderly:

Not enough is known about babool use in children and the elderly. Therefore, before providing babool to youngsters or the elderly, it is advised that you speak with your doctor. Never use babool or any other herb for self-medication without first speaking to an Ayurvedic physician(3).

CONCLUSION:

The amazing ayurvedic herb babool offers a number of health benefits. Every part of the plant has different medicinal properties, including the



fruit, leaves, pods, branches, bark, and pods. It treats skin conditions, promotes wound healing, and much more. It also improves oral health.

REFERENCES

1. Health MOF, Welfare F. THE AYURVEDIC PHARMACOPOEIA Part-I [Internet]. 21–22 p. Available from: <http://www.ayurveda.hu/api/API-Vol-1.pdf>
2. Aniket Gholap, review on acacia Arabica and its morphological description, world journal of pharmaceutical research, volume 11, 2022
3. <https://pharomeasy.in/www.ayurveda.hu/api/API-Vol-1.pdf>
4. Zaman R, Shamsi S, Zaman R, Itrat M. Bark of Acacia Arabica -A Nature's Gift: An Overview. *Int Res J Med Sci* [Internet]. 2014;2(5):20–4. Available from: https://www.researchgate.net/publication/332858395_Bark_of_Acacia_Arabica_-_A_Nature's_Gift_An_Overview.
5. Roqaiya M, Begum W, Jahufer R. Acacia arabica (Babool) – A Review on Ethnobotanical and Unani Traditional Uses as well as Phytochemical and Pharmacological Properties. *J Pharm Phytopharm Res* [internet]. 2015;4[6] 315-21 Available from: <https://ejppr.com/storage/models/article/iKzp3TU9UBM4Qft8Zv8j96YD0xaT6F3YuIxKPFaFGtd0xjAn9q3ZVGI7nExU/acacia-arabica-babool-a-review-on-ethnobotanical-and-unani-traditional-uses-as-well-as-phytochemic.pdf>.
6. Bhandari M.M.: Flora of the Indian Desert, M.P.S. Jodhpur, India. 1978:132- 134
7. Singh K.N., Chandra V. And Barthwal K.C.: Hypoglycaemic activity of Acacia arabica, Acacia benthamii and Acacia modesta leguminous seed diet in normal albino rats. *Indian J Physiol Pharmacol* 1975; 19: 167-168
8. Jain A.K., Shimoi K., Nakamura Y., Tomita I. And Kada T. Preliminary study on the desmutagenic and antimutagenic effect of some natural products. *Curr Sci* 1987; 56: 1266-1269
9. Sudhakar prabhu K. Saldanha K. And Pattabiraman T.N.: Natural Plant enzyme inhibitors: A comparative study of the action of legume inhibitors on human and bivine pancreatic proteinases. *J Sci Food Agric* 1984; 35: 314-321.
10. Alam S, Anjum N, Akhtar J, Bashir F, Parveen S, Delhi N, et al. Pharmacological Investigations On AQAQIA – Acacia arabica (Lam.) Willd. 2018;6(1):3–6. Available at: <https://ijcrt.org/papers/IJCRT1892006.pdf>

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