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A Comprehensive Review On Hair Benefits Of Onion And Shikakai

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Abstract
Onion is a mass-cultivated vegetable consumed worldwide for 4000 years. The genus Allium is at its most diverse in in the Mediterranean region, with China and India the largest onion-producing countries in the world. It is consumed in various forms and used in various cuisines.
Onion (*Allium cepa*) is a member of the family Amaryllidaceae and one of the most widely cultivated species of the genus *Allium*. Onion has plentiful chemical compounds such as allicin, quercetin, fisetin, other sulphurous compounds: diallyl disulphide and diallyl trisulphide. Onion and its main components in specific doses have shown a lot of benefits including freeradical scavenging and antioxidant properties, anticholesterolemic, antiheavy metals toxicity, antihyperuricemia, antimicrobial, anti-gastric ulcer, and anticancer. This study summarizes numerous *in-vitro* and animal studies on the protective effects of onion against natural and chemical toxicities. Onion and its main components can ameliorate the toxicity of chemical agents in kidney, liver, brain, blood, heart, reproductive system, embryo, pancreas through reducing lipid peroxidation, antioxidant effect, radical-scavenging, anti-inflammatory, chelating agent, cytoprotective activities, increasing protein synthesis in damaged tissues, suppressing apoptosis, as well as modulation of PKC-ε/p38MAPK, Wnt/beta-Catenin, ERK, JNK, p38 MAPK, Bcl-2, Bax, and NF-κB signaling pathways., Shikakai Acacia concinna Linn. (Leguminosae) is a medicinal plant that grows in tropical rainforests of southern Asia and thefruits of this plant are used for washing hair An attempt has been carried out in respect to the authenticity and assay of Shikakai (Acacia Concinna Linn.) fruit. Present paper reports on pharmacognosy, physico-chemical parameters including the Thin Layer Chromatography of fruit. The result shows the presence of saponin cavity inmesocarp, stone cells in pericarp region, pitted vessels were observed. The phytochemical analysis of the prepared sample by implementing organoleptic, microscopic, physicochemical, preliminary phytochemical screening and quantitative estimation shows 8.04 % then after Chromatographic study to ensure suitable parameters for its quality control.
Acacia concinna Linn. (Leguminosae) is a medicinal plant that grows in tropical rainforests of southern Asia and the fruits of this plant are used for washing hair an attempt has been carried out in respect to the authenticity and assay of Shikakai (Acacia Concinna Linn.) fruit.

1.INTRODUCTION

Hair loss and thinning can be distressing, prompting many to seek natural remedies to stimulate hair growth[2]. One such remedy that has garnered attention is onion juice[3]. Advocates claim that onion juice can significantly enhance hair growth and combat hair loss[6]. But does it actually work? Let's delve into growth. science and potential benefits of using onion juice for hair[6].

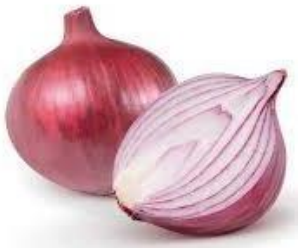


Figure 1

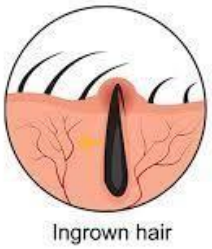


Figure 2

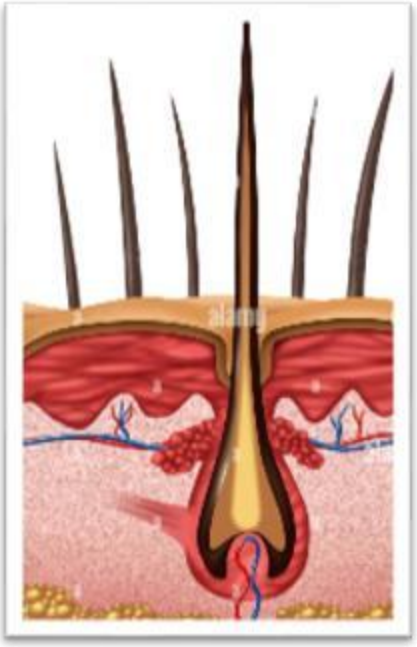


Figure 3

Science shows that there are many ways onion juice can help with hair loss. For one, onions are high in dietary sulfur, a nutritional element our bodies need[12].
Sulfur is found within amino acids, which are components of protein. Proteins — and especially keratin, which is known to be sulfur-rich — are needed for growing strong hair[32].
When added to the hair and scalp, onion juice can provide extra sulfur to support strong and thick hair, thus preventing hair loss and promoting hair growth[12.]
The sulfur from onions may also help promote collagen production. Collagen in turn helps the production of healthy skin cells and hair growth[46].
It's also believed that onions may boost circulation. Applying onion juice to the hair and scalp could increase blood supply to hair follicles, which in turn improves hair growth[9].
There have been studies on how onion juice prevents hair loss, but not on its other benefits[8].
A 2002 studyTrusted Source attempted to put onion juice's hair loss science in action. The group who washed their hair with onion juice experienced more hair growth than those who washed it with tap water. Men also appeared to experience a greater benefit than[12].
On the other hand, onion juice shouldn't be considered a cure for hair loss conditions like alopecia or pattern baldness. It can help stimulate and protect growth of current hair, but it's not known to reverse any hair loss-related illness[15].
*How do you use onion juice for hair?
Many people have developed simple instructional home treatments to apply onion juice to their hair[48].
Some people may avoid using onion juice for their hair due to its strong smell. For this reason, some have suggested simple recipes to help curb the onion smell. Try this one if you are curious:Combine 3 tsp. onion juice with 2 tsp. lemon juice[7].
Apply mixture to hair and scalp as evenly as possible.
Leave on hair and scalp for 30 minutes[42].
Rinse and use a mild shampoo to reduce any onion smells
*To encourage hair growth
A 2018 study published in the Journal of Drug Delivery and Therapeutics took a look at the onion's ability to improve hair growth[12].
The study's researchers created an onion shampoo by:
gathering 100 grams (about 3.5 ounces) of fresh onion bulbscutting them into small piecesusing a food processor to chop the onion into even smaller partsfiltering the onion extract by pouring the chopped onion over a muslin clothThey then added the onion extract (usually anywhere from 1 to 3 milliliters) to a natural shampoo of coconut, castor, and eucalyptus oils as well as cleansers[36].
Shikakai
Senegalia rugata has been used traditionally for hair care in the Indian Subcontinent since ancient times. It is one of the Ayurvedic medicinal plants. It is traditionally used as a shampoo and it is also added in synthetic Ayurvedic shampoos[44].
That is why ancient Ayurveda texts like Charaka Samhita and Sushruta Samhita also mentioned the benefits of using Shikakai to maintain healthy hair. This is considered a great remedy for cleaning the scalp and strengthening

hair roots, which can hence grow under better conditions. It also helps with problems like dandruff and scalp irritation[25].

Ayurvedic Classification	Description
Rasa (taste)	Astringent
Guna (properties)	Laghu (light) and Ruksha (dry)
Virya (potency)	Ushna (hot)
Vipaka (post-digestive effect)	Madhura [23]

Figure 4

Figure 5

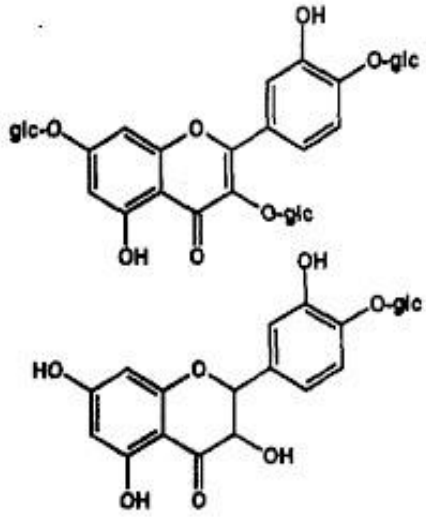
Shikakai is a humble podbearing plant deeply revered in Ayurvedic traditions and has been used for centuries to address all of your hair care needs[25].

Indian ayurvedic references have always advocated the incorporation of natural extracts like Shikakai in hair care to render healthy, long, lustrous locks from root to tip[28]. This is an all-encompassing guide about Shikakai, including the Ayurvedic view of this herb, its nutrient profile, and its numerous benefits for hair growth[25].

2.CHEMICAL CONSISTUENT

Onion (Allium cepa) is a member of the family Amaryllidaceae and one of the most widely cultivated species of the genus Allium. Onion has plentiful chemical compounds such as allicin, quercetin, fisetin, other sulphurous compounds: diallyl disulphide and diallyl trisulphide[18].

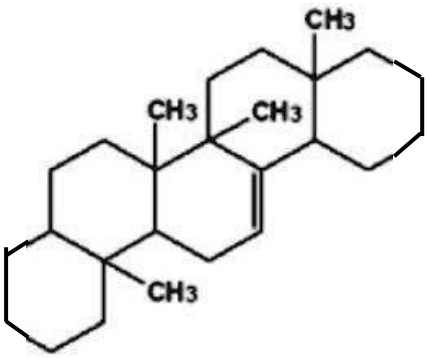
Chemical structure of onion[18]



Shikakai

Lupeol, spinasterol, acacic acid, lactone, and the natural sugars glucose, arabinose and rhamnose. It also contains hexacosanol, spinasterone, oxalic acid, tartaric acid, citric acid, succinic acid, ascorbic acid, and the alkaloids Chemical structure of shikakai[44]

calyctomine and nicotine[44].



3.EXPERIMENTAL

In this review arti**cl**e, a comprehensive search was conducted for studies that have been published until March 27, 2019, in the following databases: PubMed, Web of Science, SciVerse Scopus, and Embase. The following medical subject headings and keywords, such as '*Allium cepa*', onion, 'protective effect', antidote, venom, toxicity, cardiotoxin, cardiotoxic, neurotoxin, hepatotoxic, hepatotoxin, nephrotoxin, nephrotoxic, mycotoxins, aflatoxin, genotoxic, lipopolysaccharide, and toxin were used[28].

4.MATERIALS AND

OnionsMETHODSare best cultivated in fertile soils that are well-drained. Sandy loams are good as they are low in sulphur, while clayey soils usually have a high sulphur content and produce pungent bulbs. Onions require a high level of nutrients in the soil. Phosphorus is often present in sufficient quantities, but may be applied before planting because of its low level of availability in cold soils. Nitrogen and potash can be applied at regular intervals during the growing season, the last application of nitrogen being at least four weeks before harvesting.[9]

Bulbing onions are day-length sensitive; their bulbs begin growing only after the number of daylight hours has surpassed some minimal quantity. Most traditional European onions are referred to as "long-day" onions, producing bulbs only after 14 hours or more of daylight occurs. Southern European and North African varieties are often known as "intermediate-day" types, requiring only 12–13 hours of daylight to stimulate bulb formation. "Short-day" onions, which have been developed in more recent times, are planted in mild-winter areas in the

autumn and form bulbs in the early spring, and require only 11–12 hours of daylight to stimulate bulb formation.[11] Onions are a cool-weather crop and can be grown in USDA zones 3 to 9.[21] Hot temperatures or other stressful conditions cause them to "bolt", meaning that a flower stem begins to grow.[23]

Onions may be grown from seeds or from partially grown bulbs called "sets" or starter bulbs. Because onion seeds are short-lived, fresh seeds germinate more effectively when sown in shallow rows, or "drills," with each drill 12" to 18" apart.[24] In suitable climates, certain cultivars can be sown in late summer and autumn to overwinter in the ground and produce early crops the following year.

Onion bulbs are produced by sowing seeds in a dense pattern in early summer, then harvested in the autumn when the bulbs are still small, followed by drying and storage. These bulbs planted the following spring grow into mature bulbs later in the growing season.[29] Certain cultivars used for growing and storing bulbs may not have such good storage characteristics as those grown directly from seed.[19]

Routine care during the growing season involves keeping the rows free of competing weeds, especially when the plants are young. The plants are shallow-rooted and do not need much water when established. Bulbing usually takes place after 12 to 18 weeks. The bulbs can be gathered when needed to eat fresh, but if they will be stored, they are harvested after the leaves have died back naturally. In dry weather, they can be left on the surface of the soil for a few days for drying, then placed in nets, roped into strings, or laid in layers in shallow boxes. They are stored effectively in a well-ventilated, cool place Shiakakai Onion bulbs are produced by sowing seeds in a dense pattern in early summer, then harvested in the autumn when the bulbs are still small, followed by drying and storage. These bulbs planted the following spring grow into mature bulbs later in the growing season.[44] Certain cultivars used for growing and storing bulbs may not have such good storage characteristics as those grown directly from seed.[15] Routine care during the growing season involves keeping the rows free of competing weeds, especially when the plants are young. The plants are shallowrooted and do not need much water when established[42].

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*Quantitative Microscopy

The transverse sections were scientifically measured the cellular constituents like Parenchyma cells, Lysogenous cavity, stone cells by trial and error method and final values are considered [22.]

*Powder microscopy7

Coarse powder (60 #), Various slides of the finely powdered drugs were prepared by using distilled water, glycerin as mounting mediums and observe for different tissue and cell contents. The powder was also cleared by using chloral hydrate solution and observed under microscope for different tissues. The powders were treated with phloroglucinol followed by HCl for

differentiation between lignified and non lignified tissues. Powders [44]

*Physicochemical parameters

Physicochemical study of the fruit powder was carried out by using various physiochemical parameters Such as Loss on drying, Ash value, Acid insoluble ash, Extractive values e.g. water and methanol.,pH mentioned in References[43].

5.CONCIUSION

Onion and its main components in the present review article manifested antidotal and protective effects against natural and chemical toxicities through *in-vitro* and *in-vivo* studies[19].

Under data from various studies, onion, and its main components have a significant protecting impact against environmental, industrial, natural, and agricultural toxins including environmental pollutants (acrylamide, carbon tetrachloride, benzopyrene, and cyanide), heavy metal (cadmium), LPS, nicotine, glutamate, and also noteworthy protecting effects against toxicity of some drugs such as acetaminophen, gentamycin, aspirin, bleomycin, doxorubicin, cyclophosphamide, streptozotocin, and ISO in various tissues. Different mechanisms such as lowering lipid peroxidation, increasing the antioxidant defense mechanism, radical scavenging, anti-inflammatory, chelating agent, cytoprotective activities, increase protein synthesis in damaged tissues, suppressing apoptosis, the modulation of PKC-ε/p38MAPK, Wnt/beta-catenin, ERK, JNK, p38 MAPK, Bcl-2, Bax, NF-κB signaling pathways, and cytochrome c are involved in onion protective and antidotal effects[36].

Although due to its different functions in various tissues, it would also be necessary to study other possible mechanisms, such as AKt and Nrf2 pathways that are involved in the benefits of onion and the major components[16]. Overall, onion and its main components can be considered as potentially therapeutic and protective agents against different toxicities[28]. To confirm the favorable impacts of onion, it is proposed to verify different experimental records by clinical trials on humans[25].

The Pharmacognostical studies and physicochemical properties of the Acacia Concinna Linn[37]. Fruit have been carried out for the first time. This could serve in the identification and preparation of a monograph of the plant. It

is a substantial step and it further requires a long term study to evaluate therapeutic efficacy of fruit to establish as the drug[17].

6.Use

Onion

1. One of the biggest benefits of onion juice for hair is that onion juice's antibacterial properties help eliminate bacteria on the scalp, which in turn promotes a healthier environment for hair growth[32].
2. Another benefit of applying onion juice on hair is that it can soothe itchy scalp. If you suffer from an itchy scalp, the soothing properties of onion juice can provide relief, making your hair care routine more comfortable[41].
3. For those looking for natural exfoliation, onion juice serves as an effective exfoliating hair growth home remedy. It contributes to improved hair growth by gently and effectively exfoliating dead skin cells and removing product buildup on the scalp[36]
4. Onion is good for hair loss. The nutrients in onion juice strengthen hair strands, reducing hair fall and promoting a fuller mane[13].
5. 5.Regular application of onion juice stimulates hair follicles, encouraging new hair growth and preventing further hair loss[12].
6. 6.Onion juice strengthens the hair follicles, making your hair more resilient and less prone to breakage[36].
7. Say goodbye to dull hair! Onion juice enhances the natural shine of your locks, giving you lustrous and vibrant hair[12].

shikakai

1. Shikakakai can help reduce **hair fall in teenagers** and in adults. It has all the necessary vitamins and properties to prevent hair fall and therefore adding it to your hair care routine is a great hair loss control tip[41].
2. Another benefit of applying onion juice on hair is that it can soothe itchy scalp. If you suffer from an itchy scalp, the soothing properties of onion juice can provide relief, making your hair care routine more comfortable[42].
3. 3.One of the best benefits of shikakai powder for hair is that it can help control and get rid of dandruff from hair and scalp. A simple DIY shikakai scalp and hair mask with shikakai powder and some **curd for hair** can help relieve you from this pesky hair problem[43].
4. 4.If you struggle to detangle your hair, shikakai will help you out. This natural ingredient makes hair smooth so it is easier to remove knots and tangles[43.]
5. 5.Shikakai is known to make hair look more rejuvenated and bouncy rather than limp and dull. If you have dull and lifeless hair, adding shikakai to your hair wash routine will help you reverse the situation[44].
6. 6.Shikakai benefits hair as it can make hair more elastic and that leads to the prevention of breakage. Hair breakage can be caused by combing and brushing to and that's why shikakai should be added to your weekly hair routine[45].
7. A great **hair growing tip** is to use shikakai powder as a scalp exfoliator. Shikakai for hair effectively cleanses the scalp and will also kill bacteria therefore creating the ideal environment for better hair growth[46].
8. Shikakai has a component called saponin which helps make the hair silky smooth and soft to the touch. It is one major reason why this natural ingredient is so popularly used in hair care products[47].

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