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Ethnobotanically Important Medicinal Plants of Tehsil Billawar, District Kathua, J&K, India

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ABSTRACT

The ethnobotanical exploration was carried out in Tehsil Billawar of District Kathua. Billawar is rich in ethnic and biological diversity since the time immemorial. Due to varied altitude and topography, the study area possesses a diverse flora ranging from the sub-tropical in the south to alpine meadows on the higher peaks of north. The study aimed to record the indigenous knowledge of senior villagers regarding the medicinal uses of local plants. The information regarding the traditional knowledge has been collected from the local senior inhabitants through verbal and informal interviews. The tribal people i.e., Gujjars, Bakarwals and Gaddis along with Hindu-Muslim communities live in complete harmony with nature. Their daily needs are met by surrounding natural products. The inhabitants of the area depend on plant resources for medicine, fuel, fodder, fibre, timber and various other purposes. The traditional use of plants as medicine is well known among the native communities of the area. In the absence of modern facilities, these people usually depend upon herbs and other materials for the treatment of diseases and ailments. Moreover, it is an undesirable fact that the knowledge of indigenous people is invaluable in the present day in the context of biological diversity conservation and sustainable utilization. There is paucity of data on ethnobotanical aspect in Billawar Tehsil. The present work is an attempt to enumerate the important medicinal flora of Billawar.

Keywords: Ethnobotany, Medicinal plants, Traditional Knowledge, Billawar.

1. Introduction

Ethnobotany is the study of direct relationship between man and plants. The plants represent an enormous pool of natural resources that can produce various products and chemicals for the advantage of all other life forms. Plant wealth of the Indian Himalayan region is known for its unique, natural and socio-economic values. The people of Billawar keep high medicinal reverence on plants from the ancient. Most of the population of this place lives in villages and is economically poor. The inhabitants of this area have been dependent on plant resources for medicine, fuel, food, fodder, fibre timber and various other purposes. Due to lack of modern medical facilities, they use plants to get rid of different ailments. The traditional use of plants as medicines is well known among the native communities of the area. The villagers have their own remedies for medicinal treatment by using various plants or plant products present in their vicinity. It is also believed that the people in ancient time were healthier than that of today that is only because of their life style and harmony with the nature. The indigenous knowledge is passing from generation to generation, but it is now restricted only to the villages. Even today, tribals and local people living adjoining to the forests are not only engaged in collection, processing and marketing of medicinal plants to boost their income but also use them to cure a number of diseases in interior villages where standard medical facilities are not available. Description of medicinal plants used in the present study is based on the survey and discussion with local people.

2. Materials and Methods

The present investigation has been aimed to study the indigenous traditional knowledge of the medicinal plants and their uses adopted by local people. During the present study, our team visited Sukrala, Parnala, Billawar, Bhaddu, Mandli and Mahanpur areas of

Tehsil Billawar (J&K) several times in the span of two years *i.e.* 2011 and 2012 and collected important information regarding the use of various pteridophytes, gymnosperms and angiosperms as herbal medicines by the Gujjar and Bakerwal tribes as well as Dogra community. Questionnaire was prepared before the survey of the study area. Contacts were made with senior persons to gather information on the points outlined in the questionnaire. Personal interviews were held with 'vaidys and hakims' with reference to the medicinal use of various plants. Tribal doctors were often taken to the forest as guides and informants to identify the medicinal plants in their natural habitat. After a long discussion with several

villagers the information were verified, recorded and documented.

3. Study Area

Jammu and Kashmir is the northern most state of the country. The study area is located at 32.62°N latitude and 75.62°E longitude. It has an average elevation of 844 m (2,769 ft). Billawar town is situated in the lap of Shivalik mountains between the banks of Naj and Bhini rivulets. Most of the area of Tehsil Billawar is hilly and about 90% of it is covered with forest. Due to varied altitude and topography, the study area bears a diverse flora ranging from the sub-tropical in the south to the alpine meadows on the higher peaks in the north.

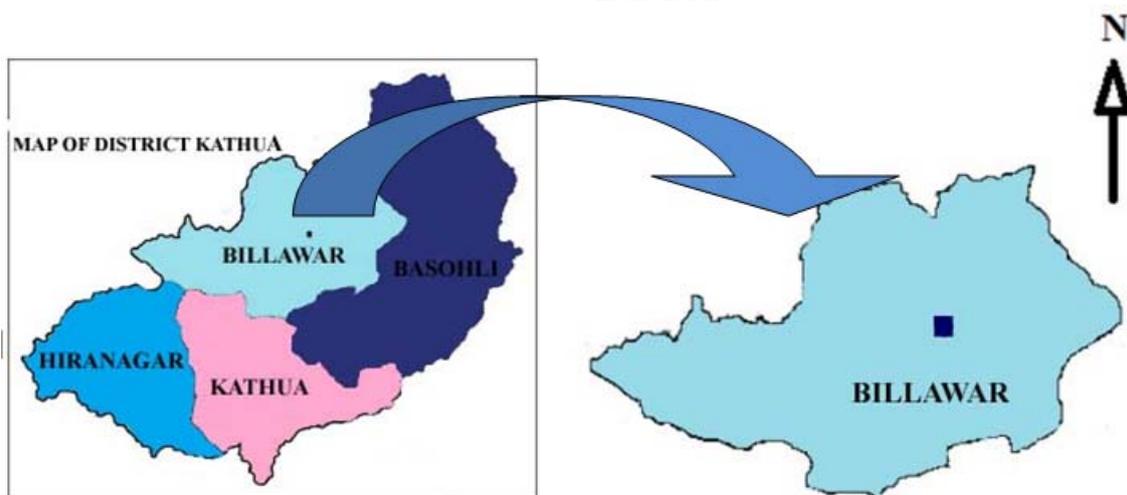


Fig 1: Map showing the location of Billawar Tehsil in Kathua District and enlarged view of Tehsil Billawar.

Table 1: Ethnobotanically important medicinal plants of Tehsil Billawar, Kathua District, J&K.

S. No.	Botanical Names	Local Names	Families	Plant Parts	Medicinal Uses
1.	<i>Acacia catechu</i> (Linn.) Wild.	Khair	Mimosaceae	Stem	<ul style="list-style-type: none"> Source of katha, which is astringent, digestive and useful in ailments of throat, mouth, gums, cough and diarrhoea.
2.	<i>Acacia nilotica</i> (Linn.) Del.	Kikar	Mimosaceae	Pods, bark, flowers, gum, leaves and roots.	<ul style="list-style-type: none"> Pods are effective in urinogenital disorders. Gum is used along with <i>Calotropis procera</i> latex to cure asthma, stop bleeding and urinary & vaginal discharges. It is also useful in diabetes, cure skin diseases and bleeding piles. Flowers are used as tonic in diarrhoea and dysentery. Paste of burnt leaves is effective ointment in itch. Roots and trunk paste is used to heal wounds.
3.	<i>Achyranthes aspera</i> Linn.	Parkanda	Amaranthaceae	Leaves and Seeds	<ul style="list-style-type: none"> The roasted seed powder mixed with honey is given during cough & throat irritations. Leaf juice is given to cure diarrhea.

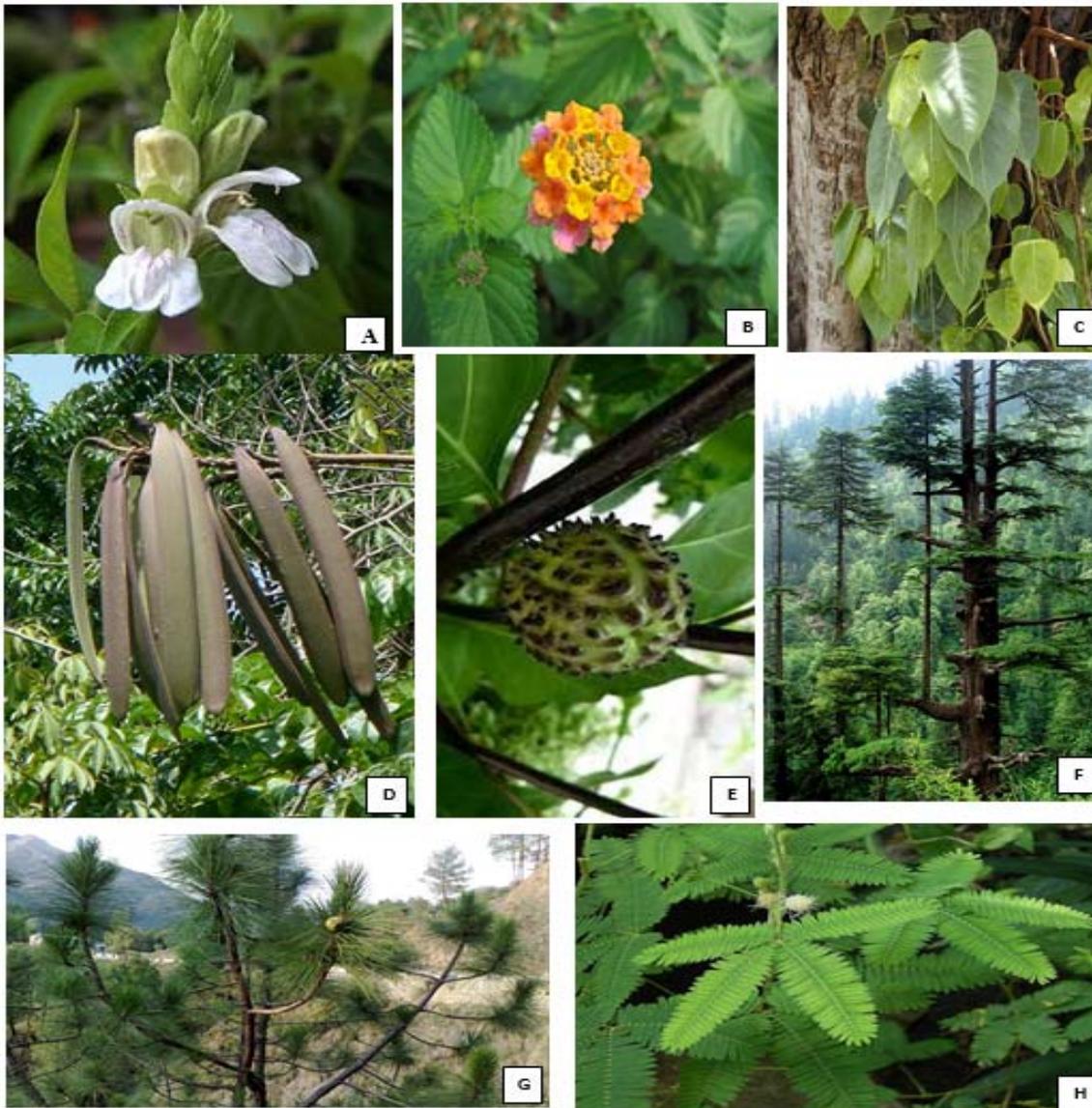
4.	<i>Adhatoda vasica</i> Nees.	Brenkar	Acanthaceae	Flower and Leaves	<ul style="list-style-type: none"> • Flower ash with honey is given to cure whooping cough. • The smoke from the burning leaves is inhaled for the cure of asthma and cough.
5.	<i>Adiantum capillus</i> Linn.		Pteridaceae	Leaves	<ul style="list-style-type: none"> • It breaks up stone in the bladder and kidneys. • Paste of leaves is useful in headache and chest pains. • Leaves are also used in respiratory problems.
6.	<i>Aegle marmelos</i> Corr.	Bel, Bill	Rutaceae	Leaf, Fruit and Root.	<ul style="list-style-type: none"> • The unripe or half-ripe fruits improve appetite and digestion. • The antibiotic activity of the leaf, fruit and root has been confirmed. • The tribal take an infusion of root bark in fever.
7.	<i>Albizia lebbek</i> (Linn.) Wild.	Sarih	Mimosaceae	Leaves, Bark and Flowers.	<ul style="list-style-type: none"> • The mild heated juice of the leaves of Sarih and mango dropped into the ear to remove the pain. • The leaves are also effective against cough. • Bark strengthens gums. • Flowers used in chronic cough and asthma.
8.	<i>Asparagus</i> <i>racemosus</i> Wild.	Sanspod	Liliaceae	Roots	<ul style="list-style-type: none"> • The fresh juice of roots along with equal amount of Til oil is applied on the head to remove pain and improvement of milk in lactating mothers.
9.	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	Bark and Leaves	<ul style="list-style-type: none"> • The bark is bitter tonic, it is astringent and ant periodic i.e., it is useful in fevers; it breaks the periodic sequence of fevers (like malaria) and is useful in skin diseases. • The leaves are applied on skin diseases and boils • A decoction of leaves is also taken internally to expel out the germs and worms present in the intestine.
10.	<i>Bauhinia variegata</i> Linn.	Karal	Caesalpiniaceae	Stem bark, Root bark, flower and buds.	<ul style="list-style-type: none"> • Bark is tonic, blood purifier and anthelmintic. • Bark of the roots is useful in flatulence. • Flowers are laxative. • Flower buds are used against piles and cough.
11.	<i>Berberis aristata</i> DC.	Kaemblu	Berberidaceae	Root bark, Roots and Lower stems	<ul style="list-style-type: none"> • Root bark, roots and lower stems are boiled in water, strained and evaporated till a semi-solid mass is obtained; this is called Rasaut, soluble in water. • Rasaut mixed with butter and alum is applied externally on eye lids to cure ophthalmia and other eye diseases.

					<ul style="list-style-type: none"> The use of rasaut is also helpful in curing ulcers and in early detection of malarial fever.
12.	<i>Bombax ceiba</i> Linn.	Simbal	Bombacaceae	Root, Bark and Young fruits	<ul style="list-style-type: none"> Roots are used in the treatment of diarrhoea. Bark is mucilaginous, which is used for healing wounds and to stop bleeding. Young fruits are useful in ulceration of bladder and kidney.
13.	<i>Butea monosperma</i> (Lamak.) Tubert.	Pala, Palash	Fabaceae	Gum, Seeds and root bark	<ul style="list-style-type: none"> The gum is valuable for treatment of diarrhoea. Seeds are useful against ringworms, roundworms and tapeworms. The root bark has been found to have some action on blood pressure.
14.	<i>Calotropis procera</i> R. BR.	Daryai aak	Asclepiadaceae	Leaves and Roots	<ul style="list-style-type: none"> The smoke from the burning leaves is inhaled for the cure of asthma and cough. A paste of the charcoal prepared from roots mixed with some bland oil is applied over skin diseases.
15.	<i>Cannabis sativa</i> Linn.	Bhang	Cannabinaceae	Leaves	<ul style="list-style-type: none"> The main use of hemp is for easing pain and inducing sleep. The tincture helps parturition and all painful urinary infections.
16.	<i>Catharanthus roseus</i> (L.) G. Don	Sadabahar	Apocynaceae	Leaves and Flowers	<ul style="list-style-type: none"> The leaves and flowers are good for the diabetic patients. Juice of leaves is used for wasp stings.
17.	<i>Cedrus deodara</i> Loud.	Deodar	Pinaceae	Stem	<ul style="list-style-type: none"> Decoction of the wood is used in the treatment of urinary disorder, piles, kidney stones and diabetes.
18.	<i>Centella asiatica</i> (L.) Urban.	Brahmi	Apiaceae	Leaves	<ul style="list-style-type: none"> The leaves powder is given with milk in small doses in mental weakness and to improve memory.
19.	<i>Cordia dichotoma</i> G. Forst	Lusade	Boraginaceae	Fruits	<ul style="list-style-type: none"> The fruits are used against cholera, dropsy and dysentery.
20.	<i>Curcuma aromatica</i> Salisb.	Ban haldi	Zingiberaceae	Rhizome	<ul style="list-style-type: none"> The rhizome powder is very effective to stop bleeding from the wounds.
21.	<i>Cuscuta reflexa</i> Roxb.	Amar bel	Convolvulaceae	Whole plant	<ul style="list-style-type: none"> The seeds are anthelmintic and are used in the treatment of bilious disorders. The stems are also used in the treatment of bilious disorders. The whole plant is used externally in the treatment of itchy skin.
22.	<i>Cynodon dactylon</i> (Linn.) Pers.	Khabbal	Poaceae	Roots	<ul style="list-style-type: none"> Decoction of roots, diuretic in dropsy. Infusion of roots for stopping bleeding from piles.
23.	<i>Cyperus rotundus</i> Linn.	Dila	Cyperaceae	Rhizome	<ul style="list-style-type: none"> The decoction of the roots is a good antidote to all poisons.

24.	<i>Dalbergia sissoo</i> Roxb. Ex DC.	Talli	Fabaceae	Leaves	<ul style="list-style-type: none"> The fresh juice of leaves mixed with honey dropped into the eyes for the improvement of eyesight.
25.	<i>Datura metel</i> Linn.	Datura	Solanaceae	Leaf, twigs and fruits	<ul style="list-style-type: none"> The dried leaves and twigs are smoked for cure of asthma and whooping cough. The juice of the fruits is useful to check dandruff and falling of the hair
26.	<i>Eclipta prostrata</i> Linn.	Bhringraj	Asteraceae	Entire plant	<ul style="list-style-type: none"> Fresh aerial parts are used to treat snake bite. Entire plant is used for tuberculosis. The juice of the plant is good for hair and skin.
27.	<i>Emblica officinalis</i> Gaertn.	Amla	Euphorbiaceae	Fruit	<ul style="list-style-type: none"> The fruits are very effective against jaundice. Dried fruits are good blood purifier. It is also used in vomiting and habitual constipation
28.	<i>Ficus benghalensis</i> Linn.	Bado	Moraceae	Latex	<ul style="list-style-type: none"> Its latex is used to expel out the thorns which are broken down inside the body.
29.	<i>Ficus racemosa</i> Linn.	Rumbal	Moraceae	Fruits and Latex	<ul style="list-style-type: none"> Fruits are useful against kidney diseases. Fruits are used in treatment of dry cough and loss of voice. Latex applied externally on infected wounds to promote the healing.
30.	<i>Ficus religiosa</i> Linn.	Peepal	Moraceae	Leaves, roots and fruits	<ul style="list-style-type: none"> The roots are chewed to prevent gum diseases. Ripe fruits are antidote against poison or venom. The powder of fruits is used for asthma. The leaves are used to treat constipation.
31.	<i>Juglans regia</i> Linn.	Ban akhrot	Juglandaceae	Bark	<ul style="list-style-type: none"> Bark is used as toothache. It provides strength to the gums.
32.	<i>Lantana camara</i> Linn.	Panjfulli jadi	Verbenaceae	Leaves	<ul style="list-style-type: none"> The leaves are used as an antiseptic for wounds and externally for scabies. The leaf juice is used for the treatment of skin itches.
33.	<i>Mallotus philippinensis</i> Muell.-Arg	Kamla	Euphorbiaceae	Powder of the seeds	<ul style="list-style-type: none"> The powder of the fruits is highly beneficial for expelling out intestinal worms.
34.	<i>Mangifera indica</i> Linn.	Aam	Anacardiaceae	Leaves and Fruit	<ul style="list-style-type: none"> The leaves, which are dried in shade, are more effective against diabetes. Fruits make the nervous system strong.
35.	<i>Mimosa pudica</i> Linn.	Chui-mui	Fabaceae	Leaves	<ul style="list-style-type: none"> Decoction of leaves is used for diabetes. Paste of leaves arrests bleeding and fasten the wound healing process.
36.	<i>Morus alba</i> Linn.	Toot	Moraceae	Leaves	<ul style="list-style-type: none"> Leaves inhibit the premature graying of hair and can promote hair growth if

					<p>used regularly.</p> <ul style="list-style-type: none"> • It also stimulates appetite.
37.	<i>Oroxylum indicum</i> (Linn.) Vent.	Tantu	Begoniaceae	Stem bark, Leaf and Fruit	<ul style="list-style-type: none"> • Stem bark paste is used for the cure of scabies. • Leaf decoction is given in stomachache. • Mature fruits are used in treating cough, piles and cardiac disorders
38.	<i>Pinus roxburghii</i> Sar.	Chir	Pinaceae	Resin	<ul style="list-style-type: none"> • The oleo-resin is useful dressing for ulcers.
39.	<i>Punica granatum</i> L.	Daduni	Punicaceae	Bark, Roots, Seeds and Leaves	<ul style="list-style-type: none"> • The bark of stem and root is very effective against tapeworms. • The fruit is very useful against the cough and jaundice. • Leaves, seeds, roots and bark are effective in anthelmintic activity.
40.	<i>Ricinus communis</i> Linn.	Arandi	Euphorbiaceae	Leaves and Oil	<ul style="list-style-type: none"> • Castor leaves are used externally by lactating mothers to increase the flow of milk. • Castor oil is used externally against itching. • Leaves are applied to head to relieve headache.
41.	<i>Solanum xanthocarpum</i> Schrad & Wendl.	Kateli	Solanaceae	Whole plant	<ul style="list-style-type: none"> • The leaves are used as anthelmintic. • Its decoction is given in chest pain and heart diseases.
42.	<i>Terminalia bellirica</i> Roxb.	Bahera	Combretaceae	Fruits	<ul style="list-style-type: none"> • The fruits are useful in digestion and diarrhoea. • It is also useful in piles and leprosy, dropsy and fever. • It is the constituent of triphala, in which others amla and harad are included.
43.	<i>Terminalia chebula</i> Roxb.	Harad	Combretaceae	Fruit	<ul style="list-style-type: none"> • The powder of the fruit is used as dentifrice for the strength of gums. • The fruit is very effective against cough.
44.	<i>Tinospora cordifolia</i> (Wild.) Miers.	Gudo	Menispermaceae	Stem	<ul style="list-style-type: none"> • It is used in urinary disorders. • It is used in treatment of jaundice.
45.	<i>Toona hexandra</i> (Wall Ex. Roxb.)	Tooni	Meliaceae	Leaves	<ul style="list-style-type: none"> • Leaves are tonic, useful in chronic dysentery. • Flowers used in menstrual disorders.
46.	<i>Vitex negundo</i> Linn.	Bana	Verbenaceae	Flowers and Leaves	<ul style="list-style-type: none"> • The extract of the leaves is used to expel out worms in children. • Fresh flowers extract cures diarrhoea. • Leaves are chewed in cough and associated colds.
47.	<i>Woodfordia fruticosa</i> Kurz	Dhai	Lythraceae	Flowers and Leaves	<ul style="list-style-type: none"> • The flowers are useful against burning sensation, skin diseases, diarrhoea, fever, headache, ulcers and wounds. • The leaves juice is effective against gall bladder problems. • The juice of fresh flowers applied on

					the forehead, reduces the headache.
48.	<i>Zanthoxylum alatum</i> Roxb.	Tirmiru	Rutaceae	Stem	<ul style="list-style-type: none"> The bark is used against toothache and stomachache. The seeds are used as tonic.



A. *Adhatoda vasica* Nees. B. *Lantana camara* Linn. C. *Ficus religiosa* Linn. D. *Oroxylum indicum* (Linn.) Vent.
E. *Datura metel* Linn. F. *Cedrus deodara* Loud. G. *Pinus roxburghii* Sar. H. *Mimosa pudica* Linn.

PLATE 1: Photographs of some medicinal plants reported from Tehsil Billawar of District Kathua, J&K, India.

4. Results and Discussion

A total of 48 medicinal plant species belonging to 44 genera and 36 families have been investigated from Billawar Tehsil of District Kathua, Jammu Division of J&K state. Moreover, it is an undesirable fact that the knowledge of indigenous people is invaluable in the present day context of biological diversity conservation and its sustainable utilization. The tribal people i.e., Gujjars & Bakarwals, and Dogra community of Billawar Tehsil live in complete harmony with nature and their daily needs are met by the natural surroundings. In the absence of modern facilities, these people usually depend upon herbs and other materials for treatment of diseases.

In the present study, a total of 48 species of medicinal plants were collected along with the documentation of significant information regarding their scientific names, common names, families and plant parts used for different purposes. The ethnobotanical use of herbs is followed by trees and shrubs, respectively. These days, anthropogenic activities such as industrialization, deforestation, habitat destruction, urbanization, etc. pose a serious threat to the species diversity. It is, therefore, very necessary to document the useful ethnobotanical flora and conserve it for future generations. Hence, the steps towards the conservation of the species with appropriate measures involving the participation of the local people has been adopted in the present research work.

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