



## A Review On Ethnomedicinal Claims Of *Acanthospermum Hispidum* DC

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### Article Info

#### Article history:

Received on: 11-04-2022

Accepted on: 18-06-2022

Available online: 30-06-2022

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### ABSTRACT:

**Introduction:** Plants are of immense value to human health and roughly 80% of world's population relies on them for cure of various diseased conditions. The aim of present review was to provide the all available ethnomedicinal information and research updates pertaining to *Acanthospermum hispidum* DC.

**Materials and Methods:** Information regarding ethnomedicinal claim were reviewed by using the available books with especial reference to medicinal plants compiled from books on ethnobotany and research articles available on internet till date. The obtained Information were categorized as per vernacular names, locality, used parts, therapeutic claims, type and mode of administration along with ingredients and dosage forms of the preparations.

**Results:** *Acanthospermum hispidum* DC. is annual herb in the family Asteraceae, which is native to central and south America, reported in 60 countries and moist habitat throughout India. This plant used as traditional medicine for various disease condition. All parts of plants are used for medicinal purpose through both the routes i.e external and internal.

**Conclusion:** *Acanthospermum hispidum* DC. conducting provable scientific studies (pharmacological and clinical) were needed to establish its multiple ethnomedicinal claims.

**Key words:** *Acanthospermum hispidum* DC., Ethnomedicine, Traditional medicine, Indian Tribes

## INTRODUCTION

Medicinal plants, also called medicinal herbs, have been discovered and used in traditional medicine practices since prehistoric times. Numerous chemical compounds are produced by plants for a variety of purposes, including protection against herbivorous mammals, fungus, insects, and illnesses. Numerous phytochemicals with potential or established biological activity have been identified. However, since a single plant contains widely diverse phytochemicals, the effects of using a whole plant as

medicine are uncertain. Further, the phytochemical content and pharmacological actions, if any, of many plants having medicinal potential remain unassessed by rigorous scientific research to define efficacy and safety.<sup>1</sup> Ethnomedicinal studies are significant for the discovery of new crude drugs from indigenous reported medicinal plants. *Acanthospermum hispidum* DC. is a branched herb up to 60 cm tall. The stems of these plants are covered with bushy hairs and smaller glandular hairs. These are scattered



throughout the stems. Leaves are elliptic, obovate and 1.5 cm to 7 cm long. The *Acanthospermum hispidum DC.* plant bears yellow flowers. Some leaves can be up to 11.5 cm long. The margins of the leaves serrate to subentire gradually narrowed to base, sessile. The flowers are typical of the Aster or Daisy Family. Each head has 5-9 ray flowers. The petals (corollas) of the ray flowers are pale yellow and are about 1.5 mm long. The disc flowers in the center of the head are sterile. The fruits are flattened and triangular in shape spiny and 5 cm to 10 cm in length. These fruits are covered with stiff, hooked hairs and have either a straight or curved pair of spines at the top. The bristly appearance and grouping of several fruits in each head provide the most frequently used common name, Bristly Starbur. Each fruit, excluding the terminal spines, is 5-6 mm long. The terminal spines are strongly divergent and are about 4 mm long. These terminal spines supply yet an additional common name, Goathead (fig.1-4)<sup>2</sup>

*Acanthospermum hispidum DC.* is native to Northern South America. It occurs naturally in Brazil and grows in disturbed places in open Eucalypt Forest, vine forest and disturbed places with many other types of vegetation. It was probably introduced from South America to both India and Africa, which may be one of the sources of the large number of popular names attributed to this plant. *Acanthospermum hispidum DC.* is also found in the tribal area of Koraput and Malkangiri district. Due to its role as an invasive weedy species on agricultural lands it has been the subject of many publications in India and other countries.<sup>3</sup>

## MATERIALS AND METHODS

### Data Collection

All information reported data on ethnomedicinal uses of *Acanthospermum hispidum DC.* was collected from available books related to ethnobotany and ethnomedicinal research articles, by using library sources and web search that includes ayusoft, Google scholar, Research gate, Pubmed, ACS publication, Medline and Dhara during May 2022.

The obtained data was arranged in accordance with the plant used by different tribes in India, therapeutic use, mode of administration, different part used, indications, availability of plant etc.

## RESULT

All over India, 9 states reported *Acanthospermum hispidum DC.* as regional available drug in their flora. Other than

India some countries also reports this drug as medicinal plant. Around 33 tribes in 5 states are using this herb as a medicine. In India it is used more externally in comparison to internal. In Rajasthan it is also used as fodder for animals.

### Table no -1 Internal application of *Acanthospermum hispidum DC.* <sup>4-12</sup>

The varied ethnobotanical claims of *Acanthospermum hispidum DC.* revealed with variety of external as well as internal uses of the plant. Internal use of *Acanthospermum hispidum DC.* was found primarily in decoction form through oral route. Either leaf or whole plant was being used in various disease like asthma, fever, bronchitis, diarrhea, malaria, liver disease, jaundice, arthritis, migraine and also used as antimicrobial, anthelmintic.

### Table no-2 External application of *Acanthospermum hispidum DC.* <sup>13-17</sup>

The review of ethnobotanical claims of external application of *Acanthospermum hispidum DC.* revealed those leaves of drug carries therapeutic values in diseases like Herpes lebalis, Cuts, injuries, wound, Scorpion sting, Skin disease, urinary disorder, swelling when used in crushed/juice formulation.

### Table no. -3 Vernacular name of *Acanthospermum hispidum DC.* <sup>18-21</sup>

The plant *Acanthospermum hispidum DC.* has been reported across India with different vernacular names. Some of them being Kadle mullu in Kannada, Musumusu and Njeringil in Malayalam, Landaga in Marathi, Kantagokhru in Odia, Kombumul, Mullichedi, Mullu chedi in Tamil, Palleru in Telugu, Bristly starbur, Pothoro konta in Andhra Pradesh, Dokanta in Rajasthan, Kanti in Gujarat, Goat's head in Other

### Table no.-4 Availability of *Acanthospermum hispidum DC.* in India<sup>22</sup>

An exploration and analysis of the availability of *Acanthospermum hispidum DC.* throughout India revealed that, it is found in Morni Hills and Gori valley area in Haryana, Pune, near Morbe dam, Chowk (Old Mumbai-Pune Highway) and East melghat in Maharashtra, Anaiktti, Coimbatore in Tamil nadu, Chalakewadi, Satara, Jawahar, Yeoor Hills (part of Sanjay Gandhi National Park), Thane in Maharashtra, Hirekalgudda, Arasikere in Karnataka, Luni and Smriti van, Jaipur in Rajasthan, Near colva beach in Goa.

### Table no.-5 Some tribes in India who use *Acanthospermum hispidum DC.* as a medicine <sup>23-27</sup>

A total of 33 tribes were using this drug as a medicine. Which include tribe Gond, Bharia and koru from Madhya

Pradesh, Bhil, Damor, Garasia, Kalbelia, Kanthodia, Meena from Rajasthan, Dhangars, Gowlis from Purnadhar-Maharashtra, Jenukuruba, bettakuruba, Soliga, yerava, Panjariyerava, malekudia, Tammadi medha, hakki-pikki, paniyerava gowdakuruba, kadu-kuruba, kaniyan and girijana from Karnataka, Kolams, Naikpods, Pardhans, Gonds, Thotis, Chenchus and Mathuras from Adilabad, Andhra Pradesh.

#### Part used and dosage form

Hence it is evident from above that, all parts of drug are used as medicine. Mostly juice and decoction are used internally, for different disease condition like malaria, leprosy, stomach complaints, cough, bronchitis, asthma, diarrhea, arthritis, migraine, rheumatism, jaundice, liver disease, vomiting, headache, convulsions, constipation, snake bite, eruptive fever, epilepsy and other microbial and viral infections. Almost in 20 diseased conditions it is used as medicine. Externally it is used in cuts, herpis lebialis, inflammation, wound, scorpion bite. Mostly paste of leaves and whole plant are used in external applications. (**Table no.1-5**)

#### DISCUSSION

The plant *A.hispidum DC.* has got its origin from the regions reportedly having the same climatic as well environmental condition as some Indian States like Maharashtra, Goa, Tamil Nadu, Madhya Pradesh, Gujarat etc. in terms of hot and humid climate thereby providing same habitat for the plant to flourish. According to one of the publications of *Vaidya Bapalaji* it has been reported that *Trikantaka* is the substitute of *Gokshura* because of same appearance of both plants. If the pharmacological properties are found identical, we can reduce burden on *Gokshura*. The review also revealed that in folklore practice, mostly the plant has been used in the form of aqueous extract (decoction). Therefore, it is recommended that aqueous extract of the plant can be used and explored further pharmacologically for the indicated diseased conditions. It was also observed that plant as a whole was being used majorly which indicates that plant carries minimum toxicity risks in its administration (both internal and external). Its crushed leaves have claims of being used topically which indicates its wide scope in wound management locally.

#### CONCLUSION

*Acanthospermum hispidum* traditionally used plant in India

and other countries among different tribes in different disorders. Out of different parts of plant, leaves were found to be used more frequently. Almost in 20 diseased conditions, it is used internally and in 5 references it is used externally, by 33 tribes. More claims available on external application for its usage can be taken for future researches. Also, the drug should be evaluated with pharmacological and clinical studies for further clinical use.

#### Acknowledgements- Nil

#### Conflict of Interest – None

#### Source of Finance & Support - Nil

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**How to cite this article:** Patel M.A, Patel B, Pandya P "A Review On Ethnomedicinal Claims Of *Acanthospermum Hispidum DC*"

IRJAY.[online]2022;5(6);112-118.

Available from: <https://irjay.com>

DOI link- <https://doi.org/10.47223/IRJAY.2022.5617>





(fig -1 Habitat of *A. hispidum DC.*)



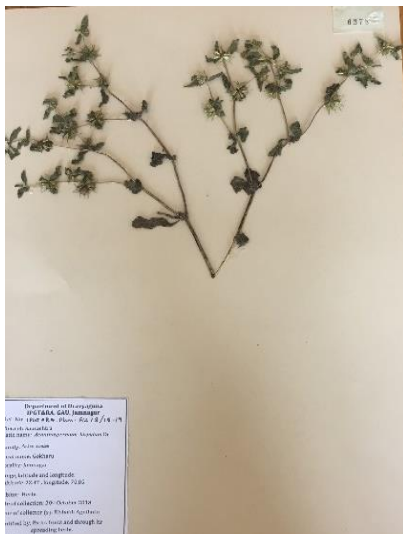
(fig -2 flower of *A. hispidum DC.*)



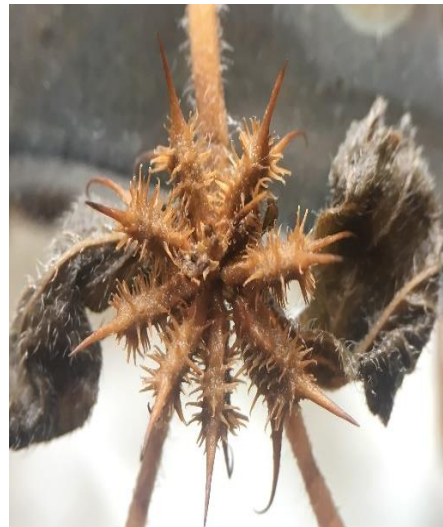
(fig -3 leaves of *A. hispidum DC.*)



(fig -4 stem of *A. hispidum DC.*)



(fig -5 Herbarium specimen of *A. hispidum DC.*)



(fig -6 fruits of *A. hispidum DC.*)

**Table no -1 Internal application of *Acanthospermum hispidum DC*.**

No	Area	Name of tribes	Part used	Indications	Form of application	Route of administration	Ref
1	Tropical central Africa	-	leaves	Anthelmintic	Tea	Oral	4
2	-	-	Root	Bronchitis and cough	-	Oral	5
3	-	-	Leaves	Fever	Boiled tea	Oral	6
4	-	-	Leaves	Diarrhea	Boiled tea	Oral	7
5	West Africa	-		arthritis, leprosy, migraine, rheumatism and stomach complaints			8
6	West Africa	Primitive	Leaves	Jaundice	Boiled tea	Oral	9
7	Nigeria-an African country	-	Whole plant	Liver diseases	Decoction	Oral	10
9	France-north south strip of west Africa - Benia	-	Whole plant	Malaria	-	Oral	11
10	Part of south America - Brazil	-	Whole plant	Asthma and bronchitis	-	Oral	12

**Table no-2 External application of *Acanthospermum hispidum DC*.**

Sr. No	Area	Name of tribes	Vernacular name	Part used	Indication	Form of application	Ref.
1	South Africa	-	-	Leaves	Herpis lebialis	Juice	13
2	North India	-	-	-	Cuts and injuries	-	14
3	Viskhapatanam, Andhra Pradesh	Kondadora	Pothoro konta	Leaves	Cuts and wound	Crushed leaves	15
4	Satpura plateau, central India	Gond, bharia and koru	Bichiya kanta	Leaves	Scorpion sting	Crushed leaves	16
5	Andhra Pradesh	Kailasakona	Sanna palleru	Whole plant	Skin disease, urinary disorder, swelling	Paste	17

**Table no. -3 Vernacular name of *Acanthospermum hispidum DC*.**

Sr No.	Region	Name	Ref.
1	Kannada	Kadle mullu	18
2	Malayalam	Musumus, Njeringil	
3	Marathi	Landaga	
4	Odia	Kantagokhru	
5	Tamil	Kombumul, Mullicheddi, Mullu chedi	
6	Telugu	Palleru	
7	Gujarat	Kanti	
8	Andhra Pradesh	Pothoro konta	19
9	Rajasthan	Dokanta	20
10	Gujarat Other	Bristly starbur, Goat's head	21

**Table no.-4 Availability of *Acanthospermum hispidum DC*. in India<sup>22</sup>**

Sr No.	State	City/village
1	Haryana	Morni hills
3	Tamil Nadu	Anaiktti, Coimbatore
5	Maharashtra	Jawahar, Yeoor Hills (part of Sanjay Gandhi National Park), Thane, Chalakewadi, Satara, Pune-, Sindhudurg, East melghat
6	Haryana	Morni Hills and Gori valley area
7	Uttarakhand	Rudraprayag
10	Karnataka	Hirekalgudda, Arasikere,
11	Rajasthan	Luni
12	Rajasthan	Smriti van, Jaipur
13	Goa	Near colva beach

**Table no.-5 Some tribes in India who use *Acanthospermum hispidum DC*. as a medicine**

Sr No.	State	Tribes	Ref.
1	Madhya Pradesh	Gond, Bharia and koru	23
2	Rajasthan	Bhil, Damor, Garasia, Kalbelia, Kanthodia, Meena	24
3	Purnadhar, Maharashtra	Dhangars, Gowlis	25
4	Karnataka	Jenukuruba, bettakuruba, Soliga, yerava, Panjariyerava, malekudia, Tammadi medha, hakki-pikki, paniyerava gowdakuruba, kadu-kuruba, kaniyan and girijana	26
5	Adilabad, Andhra Pradesh	Kolams, Naikpods, Pardhans, Gonds, Thotis, Chenchus and Mathuras	27