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# Prosopis Cineraria (L) Druce: An Hope For Livelihood

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## Research Article

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**ABSTRACT**

*Prosopis cineraria* are territorially called Khejri one among the premier regular tree of the Indian desert joy to family Mimosacease. The plant has the main pharmacologic exercises which joins pain relieving, anthyperlipidemic, antipyretic and antimicrobial movement. It's utilized truly inside the treatment of grouped ailments like skin problem, Bronchodilator action, Skeletal Muscle relaxant and so forth The smoke of the consumed leaves is utilized to treat eye aggravations. Leaf glue is applied on bubbles and rankles, incorporating mouth ulcers in domesticated animals and leaf implantation on open bruises on the skin. Blossoms are utilized as an anti-diabetic specialist and to forestall foetus removal. The plant material is one of the home grown solutions for snake chomp and scorpion sting. The wood debris might be utilized as wellspring of potash and the remains are scoured ridiculous to eliminate hair. has been detached from the plant. The quantities of phytoconst ituents like steroids, flavone subsidiaries, alkaloids and so on Clinical strength exercises like antibacterial movement, pain relieving, Anti-diarrhoeal , anticonvulsant, anticancer, Hypolipidemic, cell reinforcement and wound mending properties are accounted for of different plant extricates. The current survey manages phytoconstituents and potential clinical forte exercises of sort *Prosopis cineraria*.

## INTRODUCTION

*Prosopis cineraria* (L) Druce. (Family Mimosaceae) is prevalently known as shami or khijda in Sanskrit and Gujarati. Te Sanskrit writing on Ayurveda portrays man employments of the plant [1].

*Prosopis cineraria* (L.) Druce (Syn. *Prosopis spicigera* L.) (Family Fabaceae (Leguminosae), sub. family Mimosaceae) could be a little to coordinate assessed tree found inside the locale of Arabia and moved sections of India like Rajasthan, Gujarat, Haryana, Uttar Pradesh and Tamilnadu[1-2]. P. cineraria has been regarded by different organizations and social orders for the versatility of all of its parts and named as "the Wonder Tree" or "Ruler of Desert"[3].

The tree holds a significant spot in the rustic economy in the northwest locale of Indian subcontinent. Since all pieces of the tree are helpful, it is called 'Kalptaru'[4].

It is a vital piece of desert plan of India as biomass maker and as spice tree it advances desert soil, fixes atmospherical gas and gives an unpractised inclusion. It adds to natural solidness of the district and offering broad help to masses, ethereal warm blooded animal and furthermore the supplement inadequate soils. Cases of this plant locally known as "Sangri" and considered as dry product of desert and are one among the most elements of example Rajasthan dish - The Panchkuta[5].

The significance of the restorative estimation of this tree has been featured in our old literature[6].The unrefined concentrates of *Prosopis cineraria* shows positive prompts supporting of wellbeing edges and in anticipation of wide determination of medical issue incorporates macromolecule and need **(Table 1)**.

Prosopis is widely planted as quickly developing and dry season lenient fuel and feed tree anyway in a truly sizable measure of countries it spreads speedily without the executives as intrusive weed. The wood of sort Prosopis is a brilliant stockpile of fuel, and fuel and charcoal region unit the imperative half to supply partner amount to the helpless ranchers [7, 9].

**Table 1:-** The Pharmacognostical characters of *Prosopis cineraria.*

| | |
|---|---|
| **Synonym** | *Prosopis spicigera*, *Prosopis spicata*. |
| **Common name** | Ghaf, Kandi, Jand, Khejri, Shemi, Shami, Khejado, jambi. |
| **Habit** | Tree of dry condition, found in sandy fields and develops bounteously on the dry, dry and uncovered living space like no man's land, developed terrains, street sides and encompassing fields of slopes |
| **Distribution** | The most widely recognized event of the prosopis is the dry spots of the world it most usually found at western rajasthan, delhi, Punjab and Gujarat condition of the India. |
| **Description** | It is a tree and the length of the tree is up to 7 m with straight boul to stature of 2m and a round crown coming about because of a trimming for grub. |
| **Variation** | Studies depicts that it changes from various species in the development rate, unit size and reach wide seed assortment |
| **Biology** | It is an evergreen tree and the tree begins blooming and fruiting at an early age. New leaves show up when the old leaves fall in the late spring. The little yellow blossoms show up in the period of walk to may. The cases are matured in the long stretch of June to august [10, 11]. |

Sawn wood of sort Prosopis is used for making goods and deck. Nectar comprised of the variety Prosopis has best caliber with long and bounteous blooming. The gum acquired from the bark is love the gum with high amount. Leaves of the family Prosopis square measure gathered by the ranchers and utilized as a proposal of fertilizer on the agrarian field. The leaves of the sort Prosopis have some specialist and insecticidal action. Bark of the class Prosopis utilized as a proposal of phenol, color and filaments so it's utilized for the readiness of prescriptions for the most part for mid-region, skin and eye drawback. Variety Prosopis can be a gas fixing tree, so it improves fruitfulness and actual attribute of the dirt [7-9].

### Plant Description

Evergreen or almost in this way, it shapes an open crown and has thick, unpleasant dark bark with profound crevices [20]. *Prosopis cineraria* are a tree to 6.5 m high with cinereous cortex with multi-purpose prickles **(Table 2)**. It delivers new flush leaves before summer. The blossoms are little in size and yellow or rich white in shading; show up from March to May after the new flush of leaves. The cases are shaped before long and fill quickly in size achieving full size in around two months' time. *Prosopis cineraria* are a tree to 6.5 m high with cinereous cortex with multi-purpose prickles, dissipated, straight and fairly perceptible and with funnel shaped expansive bases.

**Root:** Root is a taproot in excess of 3 m long.

**Leaves:** Leaves are 1-3-jugate, glabrous or puberulous; petiole and rachis is 0.5-4 cm long, thepinnae is 2-7 cm long; handouts are 7-14-jugate, applaud, directly to sub falcate, without nerves or 2-4 nerved at base, the midrib excentric), mucronate, 415 mm long x 2-4.5 mm wide, grayish when dry; stipules foliaceous, deciduous.

**Flower**: Flowers are yellow, glabrous; calyx shorten, 0.8-1.2 mm long; corolla 3.5 mm long, glabrous, the petals moved back in age; anthers 0.8-1 mm long; pistil glabrous.

**Fruits**: Fruit is slim, extend, 8-19 cm long (counting the stipe 0.8-2 cm), subcylindrictorulose, 4-7 mm in measurement, glabrous; pericarp is flimsy, fragile; endocarp portions are dainty, longitudinal, minimal created.

**Seeds**: Seeds are inaccessible, longitudinal, praise, 6 mm long, the covering with open pony shoe fissural line on faces, 10-15 out of a case, earthy coloured.

### Therapeutic Utility of the Prosopis Cineraria

### Anti-Hyperlipidemic Impact

The lipid changes related with diabetes mellitus are attributed to grow movement of free unsaturated fats into the liver. This may provoke insulin inadequacy. It can cause excess unsaturated fat declaration in the liver and addition greasy oil level. It grows the hepatic VLDL creation and in everyday the level of HDL (great cholesterol) diminishes. Treatment with *prosopis cineraria* bark normalized all the lipid profile boundaries. Hydro alcoholic concentrate of the prosopis shows divide subordinate effect on the lipid profile, higher part shows tremendous action over Triglyceride, cholesterol, and furthermore increase the level of the HDL(13).

### Anti-Cancer Action

Threatening development is a class of contamination wherein a social occasion of cell isolates in uncontrolled manner with assault and metastasis. The helpful assessment of the plants is extended discretionarily in the treatment of the danger because of cell support movement. The methanolic concentrate of the leaves of *prosopis cineraria* are used which shows gigantic progressive looking through action. The remove limits cell development by impelling cell passing and the level of cell Proliferation (14).

### Activity against multidrug resistant bacterial and fungal strains

The antibacterial action of the sort Prosopis is expected of the presence of flavonoids and tannins. The Methanolic and Aqueous concentrates of stem bark of class Prosopis shows moderate bactericide action at 250 µg/ml. Methanolic remove shows indispensable activity on all microbes (12). In another examination The concentrate of the prosopis shows critical movement against the majority of the as of late explored microbial strains. The phytoconstituents present in the plant assume a significant part and act like phytomedicine to act against microorganisms. The concentrate of the prosopis act like a novel anti-microbial and

**Table 2:-** Macroscopic Character of *Prosopis Cineraria.*

| | |
|---|---|
| **Colour** | Externally Brownish white or Brownish green in colour |
| **Texture** | Rough, Ridged and Fissured |
| **Taste** | Slightly Pungent |
| **Odour** | Aromatic odour |
| **Shape** | Shallow |
| **Thickness** | Curved 2mm to 5mm |

the impact of the prosopis is like the expansive range anti-infection agents. The concentrate of the prosopis doesn't deliver any unfriendly impact after organization. The different kinds of photochemical are liable for action against multidrug opposition [15].

**Antioxidant Activity and Wound healing properties**

Oxidative pressure and irritation are the basic elements ascribed with delay in injury fixing measure. Generally *Prosopis cineraria* (L.) Druce (PC) is utilized for quick mending of cutaneous injuries. Since there is absence of logical case of this therapeutic plant on injuries, the fundamental focal point of present examination was to investigate the injury mending impact of PC in rodents by utilizing extraction and cut injury model just as biochemical assessment alongside fiery markers. Thinking about these realities, ethyl acetic acid derivation, chloroform and butanol parts of PC hydroethanolic remove (EFPC, CFPC, BFPC, individually) examined for assurance of cancer prevention agent movement by in vitro strategy and afterward most grounded action having division was further quantitatively dissected by HPLC-DAD examination. in vitro calming and compound (collagenase and elastase) inhibitory impact of BFPC were researched to affirm hidden component of activity for wound recuperating measure. BFPC was seen as most dynamic part against free revolutionaries among all and presence of protocatechuic corrosive, chlorogenic corrosive, ferulic corrosive and caffeic corrosive was affirmed by HPLC-DAD examination. Results showed that BFPC has huge calming just as against collagenase and hostile to elastase exercises. Use of BFPC balm for 16 back to back days on the dorsal injury space of rodents affirmed the quicker twisted fixing measure, higher hydroxyproline content, decrease in epithelialization period and incendiary markers in blood when contrasted with control bunch. Histological examination additionally supported the outcomes by advancing collagen development, re-epithelialization, angiogenesis and fundamentally the reclamation of cutaneous extremities, i. e., hair follicles. Consequences of current investigation ensnare that BFPC can possibly go about as viable cutaneous injury mending agent [16].

**Anti-Convulsant Activity**

Anticonvulsant action of the methanolic concentrate of *prosopis Cineraria* (Linn) Druce stem barks was thought about in contrast to maximal electro stun (MES) and Pentylenetetrazole (PTZ) inspired seizures in mice. The concentrate stifled rear appendage tonic augmentations (HLTE) instigated by MES and furthermore displayed shielder bring about PTZ initiated Seizures in a very portion subordinate way. Methanolic concentrate of rosid dicot sort Cineraria at dosages of 200 and 400 mg/kg and Dilantin (25 mg/kg) have shown critical decrease in time of spasms. It was successful against MES evoked seizures, prescription defensive against tonic-clonic seizures inspired by PTZ are viewed as accommodating in controlling myoclonic and nonappearance seizures in humans [17].

**Anti- Diarrhoeal Activity**

Naik et al presumed that the action of prosopis was antidiarrhoeal. An investigation on the stem bark of *prosopis cineraria* was done by Naik et al. The plant methanolic extricate is utilized to assess the antidiarrhoeal action. The plant separate shows portion subordinate antidiarrhoeal activity [18].

**Analgesic and Anti -Pyretic Activity**

The pain relieving and hostile to - pyretic action of petrol ether, ethyl acetic acid derivation and ethanol concentrates of stem bark of *Prosopis cineraria* (Linn) Druce in trial creature models were assessed.

The concentrates were set up by constant hot thorough extraction with Petroleum ether, Ethyl acetic acid derivation and Ethanol utilizing soxhlet extractor. The presence of phytosterols, flavonoids, phenolic compounds, tannins, carbohydrates, proteins and amino acids were distinguished in the fundamental phytochemical examination of various concentrates of Stem Bark of *Prosopis cineraria* (Linn) Druce **(Table 3)**. Pain relieving movement was surveyed by Eddy's hot plate strategy and the antipyretic action was assessed by utilizing Brewer's yeast prompted hyper pyrexia technique. Oral organization of ethanol extricate at the centralization of 300 mg/Kg showed portion needy and huge ($p < 0.01$) pain relieving action while, the oil ether remove (300 mg/Kg) showed huge ($p < 0.01$) turned around Brewer's yeast-initiated fever in Albino rats [19].

**Analgesic Activity**

*Prosopis cineraria (L.)* Druce is a significant set up, nitrogen fixing, multipurpose tree endemic to the hot deserts of India. Its identical is *Prosopis spicigera*. It has a spot with the family Leguminosae and subfamily Mimosoideae. Thinking about its remedial importance, the current examination was based on the agony assuaging properties of fundamental establishments of P. cineraria by in vitro approach in rodents. The agony mitigating activity of establishment of *Prosopis cineraria* was considered using hot-plate

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**Table 3:-** Chemical Constituents from *Prosopis cineraria* [21-26]

| No. Compound | Name Source | Ref. |
|---|---|---|
| **Flavonoids** | | |
| Patulitrin | P. cineraria | (Sharma et al.) |
| Prosogerin A (6 Methoxy- 7-hydroxyl–3'4'- methylencedioxylflavone) | P. cineraria | (Bhardwaj et al.) |
| Prosogerin B (2' 4' Dihydroxy -5'methoxy-3,4- methylenedioxy chalcone (II)) | P. cineraria | (Bhardwaj et al.) |
| Prosogerin C (6,7,3',4',5'- pentametoxyflavone) | P. cineraria | (Bhardwaj et al.) |
| Prosogerin D (6',3',4'5',- tetramethoxy-7-hydroxyl flavone) | P. cineraria | (Bhardwaj et al.) |
| Prosogerin E (6,7-dihydroxy-3',4',5',-trimethoxy flavone) | P. cineraria | (Bhardwaj et al.) |
| Patuletin | P. cineraria | (Bhardwaj et al; Ukani ) |
| Luteolin | P. cineraria | (Bhardwaj et al; Ukani et al.) |
| **Alkaloids** | | |
| Spicigerine | P. cineraria | (Bhardwaj et al.) |
| Dasycarpidan-1-methanol,acetate (ester) | P. cineraria | (Aneela et al.) |
| 3-Butylindolizidine | P. cineraria | (Aneela et al.) |
| Prosophylline | P. cineraria | (Aneela et al.) |
| **Steroids** | | |
| Cholesterol | P. cineraria | (Malik & Kalidhar; Jewers et al.) |
| 7,24-Tirucalladien-3-one | P. cineraria | (Malik & Kalidhar; Jewers et al.) |
| Campsterol | P. cineraria | (Bhardwaj et al.) |
| Stigmasterol | P. cineraria | (Bhardwaj et al.) |
| 17. β-Sitosterol | P. cineraria | (Bhardwaj et al.) |
| Stigmasta-4,6-dien-3-one | P. cineraria | (Bhardwaj et al.) Fatty acids and Derivatives |
| (Z)-13-Docosenamide | P. cineraria | (Aneela et al.) |
| 9-Hexadecenoic acid | P. cineraria | (Aneela et al.) |
| Palmitic acid | P. cineraria | (Ukani et al.) |
| Stearic acid | P. cineraria | (Ukani et al.) |
| Oleic acid | P. cineraria | (Ukani et al.) |
| Linoleic acid | P. cineraria | (Ukani et al.) |
| Heneicosanoic acid | P. cineraria | (Khan et al.) |
| Methyl heptacosanoate | P. cineraria | (Khan et al.) |

procedure and tail-submersion method in rodents. Parts of the ethanolic concentrate of 200mg/kg and 300mg/kg, orally were picked for torment alleviating development. The aggregate at all the bits used and the Diclofenac sodium inside and out subdued both the agony mitigating development for hot plate and tail soaking strategy. The current assessment displays the probably torment soothing effect of ethanolic concentrates of *Prosopis cineraria* roots. The segment of 200mg/kg b.w is convincing than 300mg/kg b.w in both above pharmacological models [20].

### Skin Disorders

### Druce leaves for wound repairing development in rodents

Without effective appraisal of wound recovering properties of *Prosopis cineraria* leaves in the composition, the current examination was embraced to survey the phytochemical assessment and wound patching capacity of Prosopis cineraria leaves on extraction wounds impelled in exploratory rodents

### Techniques

Ethanolic remove from *Prosopis cineraria* were assessed for cell support development using DPPH free fanatic scavenging activity. Extraction wounds were made in male pale cleaned individual wistar rodents and were treated with *Prosopis cineraria* ethanolic isolated (sulphathiazole balm was used as a wellspring of viewpoint medicine - extensively used for bent retouching) for a period of 13 days.

## Results

Successful utilization of *Prosopis cineraria* ethanolic remove for 13 days showed 92.13 ± 3.23% diminishing in injury district when stood out from controls which was 91.45 ± 5.23 %. The results got were identical with Sulphathiazole treatment 1 % w/w [27].

### Skeletal Muscle Relaxant

M. George et al used rota rod to evaluate the skeletal muscle relaxant activity. The test is used to choose the development of the prescription interferes the motor activity. It is done up by the assessment that P*rosopis cineraria* bunches basic skeletal muscle relaxant activity and the activity is a direct result of the presence of alkaloids, tannins, and flavonoids which are accessible in the leaves extract [28].

**Bronchodilator Activity**

*Prosopis cineraria* is used for the treatment of respiratory disease like asthma, cough and bronchitis. Hence Khalid hussain Janbaz [29] used methanolic concentrate to test the bronchodilator activity on carbachol. The remove shows obsession subordinate relaxant effect on both carbachol and K+ induced contraction. The bronchodilator activity is a direct result of the bar of Ca+ channel.Ca+ Channel preventing development is also important in tracheal relaxant which is depicted by hyper responsiveness of the respiratory plot.

**Vasodilatory Development**

Since the *Prosopis cineraria* methanolic remove causes blockade of the Ca+ channel hence it furthermore gives the vasodilatory sway. Ca+ channel upsetting experts are used as vasodilatory experts they are most commonly embraced in hypertension and congestive Heart failure [29].

**Detoxifying Activity**

Sivarathri Siva Rajesh et al proposed the detoxification effect of the Aqueous, Methanol and petroleum ether concentrate of remedial plant *Prosopis cineraria* against Naja naja. The liquid bark concentrate of prosopis cineraria has extensive neutralizer potential. The watery concentrate with the segment of 14mg/kg have ability to slaughter the destructive activity completely. Aqueous remove not causes any sort of ominous effects that are for the most part fundamental with other detoxifier and antidotes [30].

## Conclusion

*P. cineraria* is a naturalized constituent of numerous normal and developed environments on the planet. From the above survey, it tends to be presumed that *Prosopis cineraria Linn* is utilized customarily since numerous years as detailed in different literary works. Plant is currently acquiring significance to build up some more new quest for the future advancement by understanding the quality level investigation.

Future endeavours are needed to be centre around incorporated administration of P. cineraria in their normal biological system and execute ecological preservation methodologies for accomplishing practical uses and keep up its advantages to livelihood and coming generation.

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