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A comprehensive review on therapeutic value of *Cassia auriculata* L.

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Abstract

Tanner's *cassia* (*Cassia auriculata* L.) is a medicinally important evergreen shrub widely used to treat various ailments. It has a wide variety of therapeutic potential for the treating diabetes, rheumatism, conjunctivitis, leprosy, ulcer, eye irritation and skin disorders. Literatures survey revealed the various pharmacological values, for instance, antidiabetic, antioxidant, antibacterial, hepatoprotective, nephroprotective, anticancer, anti-inflammatory, antimicrobial and antihyperlipidemic activities. The phytochemical ingredients of *C. auriculata* possess substantial quantities of flavonoids, phenols, tannin, terpenoids, alkaloids, quinines, sugar saponins and steroids. The folk medical practitioners' indiscriminate reaping of *C. auriculata* might reduce the natural habitat drastically. Hence, it is important to conserve this species by focusing considering the exploitation this species undergoes as revealed by the published scientific data regard to its ethnobotany, phytoconstituents and pharmacological activities exerted by this species.

Key words : *Senna*, Avaram, Phytochemicals, pharmacological activities.

Traditional medicine is an important part of health care. During the last decade, the use of herbal medicines has increased. It provides for an alternative way to treating health ailments like type 2 diabetes. Consequently, an increase in traditional way of treatment through herbal medicines has gained importance. In recent years, the widespread usage of herbal medicines has presented India with an excellent opportunity to search for therapeutic lead chemicals from an old system of medicine, namely Ayurveda, that may be used in the improvement of novel medicines at a cheaper cost,and other indigenous systems of medicine advise dietary modifications and traditional plant remedies, which are

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commonly employed in India[72]. Natural products account for more than half of all modern medications and play an essential part in the pharmaceutical industry's drug research programmes[5]. Medicinal plants have caught people's attention worldwide because of the safe and effective constituents of plant products and the presence of active principles in medicinal plants[20]. From 2000 to 2005, annual sales for traditional medicines increased from US$ 385 million to US$ 1.29 billion. Thus, it fetching valuable foreign trade. Accordingly, drug safety for the subject has become even more important in the current situation. Plants are thought not only as nutritional enhancement to living being but also for curing various health ailments. Medicinal properties of various flora still unknown for their enumerable action of compounds responsible for late. Thus, Plant materials are still valuable resources in the fight against global illness.

Plant pharmacognostic research is done to uncover new medications or models for improving pioneering therapeutic substances[4]. There are around 250,000 species of higher plants, but only 5-10% have been chemically investigated and being utilized[68]. Over 60% of the global human population with therapeutic requirement, 80% of people in poor nations rely solely on plants and World Health Organization[4]. Plant therapeutic characteristics have played a considerable responsibility in the development and evolution of many traditional herbal medicines. Many plants contain phytopharma-ceuticals, encompassing wide-spread use in agriculture, human and veterinary medicine. Plants offer an extensive series of possible applications, including traditional therapy and pharmacopoeial medications. Because mainstream medicine is scarce and expensive, a huge section of the world's population relies on conventional medicine[25]. India is essentially a world herbarium, with plants and herbs serving as the primary source of medicine. India is a veritable emporium of medicinal and fragrant shrubs.

Out of 15000 higher plants found in India, it is estimated that 9000 are commonly useful, with 7500 being medicinal, 3900 being edible, 700 being culturally significant, 525 being used for fibre, 400 being fodder, 300 being used for pesticide and insecticide, 300 being used for gum, resin and dye, and 100 being used for aroma and perfumes[56]. Herbals that are both a component of our diet and have a medicinal impact are in high demand, and the *Cassia* species is one of them[24]. *Cassia* group are an annual beneath shrub that grows throughout tropical countries (India, Bangladesh, West China and Pakistan) and thrives as a rainy period wild plants in the wasteland[26]. It grows up to 1000-1400 metres above mean sea-level from low-lying coastal areas, river banks, waste regions, and additional moist sites similar to undeveloped fields. Some of the *Cassia* plants according to their nativity, are utilized as herbal medicine, and different *Cassia* species are scheduled in the Red Data Book. *Cassia* (Fam: Fabaceae) is a largely tropical genus with about 600 species of herbs, shrubs and trees, which are widely spread throughout the planet, of which only 20 species are indigenous to India. It is a small bush which grows wild in South India with flowers and pods throughout the year. It grows on dry stony hills and black soils, along roadsides, in damaged forests, and on wastelands. It is distributed throughout the hot deciduous forests of India. Wild in dry locations of MP, TN, Rajasthan and other parts of India. It is

cultivated in Punjab, UP, Haryana and West Bengal. It can also be predominantly grown wild in the Central Provinces and the Western Peninsula of India and farmed in other regions of the country. The plant is currently widely used as part of the Ayurvedic healthcare system in Sri Lanka and India[48].

Many medicinal plants' phytotherapy has been mentioned in the curing of ailments, and such a plant is *C. auriculata,* profoundly used in ayurvedic medicine. *C. auriculata* belongs to the sub-family Caesalpinioideae. The name commonly known as tanners *cassia*[64], it has other names in different languages, such as Hindi (*tarwar*), Telugu (*avarike*), Kannada (*tangedu*), Tamil (*avaram, avarai*), Sanskrit (*pitapuspa, pitakalika, avartaki, carmaranga, manojyana pitakala*), and Malaysian people call it as tanners tea, mataran tea[45]. It has a distinguished place in the ayurvedic and siddha medical systems. This shrub is evergreen and has striking yellow flowers that develop in different parts of India and other locations in Asia. *C. auriculata* is largely utilized conventionally for curing diabetes, rheumatism, conjunctivitis and other disorders like ulcers, skin disorders, eye irritation, and leprosy[22,23].

The plant has been reported for their antidiabetic[48], anti-oxidant[53], antibacterial[38], hepatoprotective[13], nephropro-tective[19] anti-cancer[30], anti-inflammatory[39], anti- microbial[55] and anti-hyperlipidemic activities[12]. *C. auriculata* sub-family Caesalpinioideae is a common Asian cocktail and therapeutic plant. In Sri Lanka, where the plant is known by its common name Ranawara. *C. auriculata* is used as a chief constituent in a beverage known as "kalpa herbal tea," which is popular among patients with diabetes, constipation, and urinary tract problems[67]. A mixture of alternative preparation called "avarai panchaga choornam" is made of dehydrated and crushed plant pieces for diabetes treatment (equal amounts of flowers, unripe fruits, leaves, roots and bark)[36,48]. The majority of *C. auriculata* research so far as concentrated on pharma-cological assessment of crude extract derived from various sections of the plant. Accordingly, the leaf extract was shown to possess antihyperglycemic activity[21,60], hypolipidemic[21], hepatoprotective activity from alcohol-induced injury[34], antipyretic[70] and *in vitro* anticancer effects[52].

The roots extract of *C. auriculata* has been shown to possess nephroprotective activity in cisplatin and gentamicin-induced renal damage[3]. The alcoholic extract of flora of *C. auriculata* which is moreover identified to have antipyretic[70] and antidiabetic values[66], is reported to encompass DPPH fundamental scavenging[23] and hepato-protective possessions[9]. However, the incidence of various available groundwork work exhibiting the phytochemical substance of the flora, such as the existence of tannins, polysaccharides, hepatotoxic alkaloids and flavonoids[54], a methodical activity-directed seclusion study on *C. auriculata* has not so far carried out. This review is directed towards filling that void. Various chemical constituents of *Cassia auriculata* are shown in table-1. Chemical composition of leaves of *C. auriculata* is depicted in table-2.

Description of Cassia auriculata :

Fruits :

The fruits of *C. auriculata* are pale brown or green. At the same time, the legumes

or pods are small and rectangular, approximately 7-11 cm) in length, 1.5cm in breadth, flat, thin, papery, pilose, undulate crimpled, and tripped with a lengthy style base. Around 12 to 20 seeds are arranged in distinct chambers in each fruit[51].

Flowers :

Flower of *C. auriculata* is bisexual with asymmetrical petals and a bright yellow colour placed in a raceme-like flower with short in stature and erect. The CAFMET revealed that the flowers possess important flavonoids, phenols, tannin, terpenoids, alkaloids, carbohydrates, and steroids[11,31]. Aloe-emodin, anthraquinone, and sitosterols are some of the chemical compounds found in it[63]. Alkaloids, saponins, glycosides, tannins, phenols, phlorotannins, triterpenes, terpenoids, carbohydrates, amino acids and proteins are abundant in the flora of *C. auriculata*.

Leaves :

The leaves are parallel, densely arranged, and stipulated. A sum of 29 compounds was found in the leaves of *C. auriculata*. 3-omethy- d glucose (48.50%), alpha-tocopherol beta D, mannosidase (14.22percent), n-hexadecanoic acid (3.21%), resorcinol (11.80%), octadecenal (2.18%), and carboxylic acid (1.98%) are the major components present[2]. Two unique triterpenoid glycosides were identified through chemical analyses of the plant's stem bark, also utilized to test the blood or haemorrhage discharge[61].

Wood :

In the heart wood of *C. auriculata* a new anthraquinone glycoside, 3 hydroxy, 6, 8-dimethoxy-2-methyl anthraquinone 1-0-beta-D-galactonide, was isolated and structurally characterized[54].

Seeds :

The seeds of *C. auriculata* plant possess a sour and astringent flavor. They are utilized to cure illnesses such as diarrhoea, diabetes, constipation, dysentery, inflammations, and other ailments. It is also utilized to cure leprosy, multiple skin disorders, and eye injuries. The seeds of *C. auriculata* possess 40.8 % fatty acid in a pale-yellow tint. Palmitic, oleic, and linoleic acids are fatty acids. The existence of benzoic acid, 2- hydroxyl methyl ester (0.07%), glycine, n-(trifluroacetyl), 1-methybutul ester (0.10%), 2,3 dihydro 3, 0.12% of 5 dihydro-6 methyl-4 hpyaran-4one, 016% of cupric acid ethyl ester, 0.21% resorcinol, water-soluble galactomannan like beta- D-manopyranosyl-1(1-4)-o-beta-D-manopyronosyl (1-4)-o-beta, D-monopyranose was identified in ethanolic seed extracts[40].

Roots :

The *C. auriculata* roots are depurative, astringent and alexetric. Anthraquinone glycosides such as 1,3,8-trihydroxy-6 methoxy-2 methyllantraqunone, 1,3-dihydroxy-2 methylantraquinone, 1,8-dihydroxy-2 methylantraqinone-3-o-rutinoside,1,8-dihydroxy-6 methoxy-2methyllantraqinone-3-o-rutinoside, and flavone glycoside are found in the roots of *C. auriculata*. A chalcone 3, 6,-dihydroxy-4-methoxychalcone and two leucoanthocyanins, leucocyanidin-3-o-rhamnopyroside and leucopeonidin-3-o-1

rhamanopyroside, are some of the compounds present in root bark[27]. Based on the element analyses and spectrum UV, IR, PMR, and mass data, the phytochemical examination of the plant roots resulted in the isolation of a new flavone glycoside, which has been identified as 7, 4-dihydroxy flavone-5-O-beta-D-galactopyranoside.

The Ethanomedicinal use of C. auriculata:

These are regularly utilized in conventional medicines for rheumatism, conjunctivitis, and diabetes[64]. It is important in the curing of tribal people's illnesses. To treat leucorrhoea, Eastern Ghats tribes concoct capsules using crushed plants and fruits[59]. Tribals utilize this herb in North East India to cure epidermal diseases and as a purgative[7]. Native tribes in Southern India make a paste from the leaves and vinegar applied to the skin to treat multiple skin disorders, hair loss[28], bone fracture[44], and other ailments[33]. In the event of a scorpion sting, even the juice of newly macerated leaves is poured into the ears. The young leaves of the plant are blended with lime and supplied once a day to alleviate stomachache[44]. Flowers treat spermatorrhea and diarrhea extract from flower. The entire plant is grounded with *Tinospora cordifolia* leaves, and stems are mashed with cow milk and consumed internally. To cure venereal disorders, the blooms are trodden and mixed with goat's milk before being eaten orally[16]. The Mina tribe in Rajasthan employs the plant's leaf extract to cure tuberculosis[40]. According to Ayurveda, the roots cure urinary leakage and tumours, autoimmune disorders, and asthma, while the bark powder is used to restore teeth. Chronic dysentery is treated with the decoction. Purulent ophthalmia and conjunctivitis in the eye are treated with decorticated seeds in fine powder and paste[56].

Pharmacological properties of C. auriculata:

Anticancer properties :

Through *in vitro* approach, *C. auriculata* leaf extract was found to induce apoptosis in human breast cancer, laryngeal cancer, and cell lines. The induction of apoptosis by the *C. auriculata* leaf extract suppresses the proliferation of hepG-2 and mcf-7 cells, making CALE a potential novel anticancer medicine. Extracted compounds from *C. auriculata* are efficient in preventing cancer in the HCT15 colon cancer cell line, and different compounds from *C. auriculata* have chemopreventive action[52]. CALE reduced both cell lines' proliferation dose-dependently, with IC_{50} values of 400 and 500 mg for MCF-7 and Hep-2 cells, respectively. The anticancer action of flavonoids and procyanidins, 3-O-beta-D-xylopyranosides, found in *C. ariculata* CALE, have been attributed to these two compounds.

Antidiabetic properties :

Several investigations have shown that a 200mg/kg dose of *C. auriculata* leaf extract exhibited hypoglycemic effects in normal and alloxin-induced animals. In streptozotacin-induced rats, 400mg/kg doses significantly reduce FBG and glycosylated haemoglobin (Ghb) and have a superior antihyperglycemic effect than other drugs. The extract of *C. auriculata* flower potentiates pancreatic insulin secretion from B cells of islets or may improve the transfer

of blood glucose to peripheral tissue, resulting in antihyperglycemic activity. When diabetic rats were given insulin, their levels increased (CFET). Furthermore, research reveals that *C. auriculata* bud extract has higher antidiabetic efficacy than flower extract. With a rise in plasma insulin, CFET increases total Erythrocyte receptor covering insulin binding spot[49]. In alloxan-induced diabetic mice, a methanolic extract of *C. auriculata* flowers rich in dianthrone[32]. In addition, several fractions of flower extracts, such as hydroethanolic, ethyl acetate, and n-butanol extract, were investigated in alloxan-producing diabetic rats. N-butanol therefore, is more effective and that the n-butanol fraction is responsible for its antihyperglycemic impact[66]. The aqueous extract of leaves shows an antihyperglycemic paradoxical effect in streptozotocin-induced diabetic mice[21].

Hyperlipidemia properties :

C. auriculata ethanolic extract inhibited hypocholesterolemic and hypotriglyceridemic effects while increasing HDL levels in rats. Ethanolic floral extract from *C. auriculata* in triton WR1339 causes hyperlipidemia in rats and has antihyperlipidemic action[71].

Furthermore, compared to its effect on TC and HDL, it is more effective in lowering TG and LDL levels. The aqueous isolates of *C. auriculata* produce a lot of NADP+, inhibiting lipogenesis also reduces oxidative stress. The antihyperlipidemic action of the plant elements kaempferol-3-O-rutinoside, rutin, kaempferol, quercetin, and luteolin in *in vitro* tests could be due to their direct lipase inhibitory impact[22]. Furthermore, research has shown that ethanolic *C. auriculata* extract has antihyperglycemic properties in budding yeast cells[57]. Reduced lipid peroxidation has been linked to anti-anthrogenic effects, and naturally occurring dietary antioxidants scavenge free radicals and superoxide anions, reducing lipid peroxidation and demonstrating antihyperlipidemic benefits[46].

Anthelminthic properties :

The anthelmintic commotion of *C. auriculata* leaf extracts in methanolic, chloroform, and petroleum ether against earthworms and the methanolic isolates can demonstrate stronger anthelmintic activity[8]. Antiparasitic activity against blood-sucking parasites such as Rhipicephalus (Boophilus) microplus, *H. bispinosa, Hippobosca maculata, Damalinia caprae*, and *P. cervi* is also attributed to it.

Immunomodulatory properties :

Polyphenols are generated from the flora of *C. auriculata*. They increase T cell immunity by boosting cell numbers, making them more sensitive to stimulants, and lowering ROS activation by neutrophils, producing numerous mechanisms in older people. Multiple biological systems in more senior people would be harmed[29].

Antiulcer properties :

In pyloric ligated rats, methanolic isolates of *C. auriculata* leaf reduces ulcer development. The methanolic extract of *C. auriculata* leaf at a dose of 300 mg/kg

p.o.reportedly reduces ulcers in pyloric ligated rats[1]. To assess antiulcer activity, the percentage of ulcer incidence and ulcer key factor were utilized, and the extract exhibits a reduced in moreover ulcer index when compared to the control group[18].

Anti inflammatory and Analgesic properties:

Various experimental models of pain and irritation were used to test the analgesic and anti-inflammatory properties of the petroleum ether and ethyl acetate fractions of *C. auriculata*. Compared to petroleum ether, this investigation showed that the ethyl acetate fraction is more efficient. It has anti-inflammatory and central analgesic properties due to its antioxidant action[37]. The anti-inflammatory action of *C. auriculata* was assessed using albumin denaturation, proteinase inhibitory activity, and membrane stabilization assays, and the results showed that the acetone floral extract of *C. auriculata* had anti-inflammatory action[58]. The methanol isolates of *C. auriculata* leaf had been revealed to have analgesic and anti-inflammatory consequences employing cotton pellet-produced chronic granulomatous, tail immersion and hot shield procedures, and carrageenan-induced rat paw oedema methods.

Anti inflammatory properties :

In acute and chronic animal models, methanolic extracts of *C. auriculata* flowers (MECA)[15] and leaves revealed substantial anti-inflammatory action. The flavonol glycoside 5-O-methylquercetin 7-O-glucoside, as well as tannin and steroid found in the flowers and leaves, were responsible for the impact. In carrageenin-induced oedema in rats, a 50% acetone extract of *C. auriculata* flower demonstrated a significant anti-inflammatory effect.

Antimicrobial properties :

Antibacterial action of the methanol extorts the leaf against Staphylococcus aureus. Using an appropriate diffusion method, methanol, chloroform, and aqueous extract of C. auriculata demonstrate antimicrobial activity. Compared to aqueous extracts, methanol and chloroform extracts have significantly higher inhibitory action[50]. The saponin-rich fraction of *C. auriculata* roots is utilized as a natural medicine to treat various microorganism-caused illnesses and disorders[11]. Antifungal (*Candida albicans, Candida tropicalis*, and *Aspergillus niger*) and bacterial (*Staphylococcus aureus, Bacillus subtilis*, and *Pseudomonas aeruginosa*) activity have been demonstrated *C. auriculata* extract[42]. *Proteus mirabilis* and *Staphylococcus aureus* were inhibited by a methanol extract of the plant's fresh blossoms[65]. The leaf and flower extract had antibacterial action against *E. coli* that produced Extended Spectrum Beta Lactamase (ESBL)[69] as well as exhibiting antiviral and antibacterial characteristics[14].

Antioxidant properties :

Of the various fractions of *C. auriculata* flower-like ether, petroleum ether, methanolic and ethanol extracts from the petroleum ether exhibited a less effective route for scavenging and dropping energy[17]. The methanol and ethanol extracts of *C. auriculata* flowers showed antioxidant activity based on

Table-1. Chemical constituent reported in *Cassia auriculata*

Parts studied	Chemical constituent	Reference
Flowers	Alkaloids, glycosides, saponins, phenols, terpenoids, flavonoids, tannins and steroids	(Kanthimathi and Soranam., 2014; Deshpande and, Bhalsing., 2013)
Leaves	O-methyl-d-glucose, resorcinol, alpha-tocopherol-beta –mannosidase, and carboxylic acid	(Anandan *et al*., 2011)
Seeds	Palmitic acid, linoleic acid, benzoic acid 2-hydroxyl methyl ester, 1-methyl butyl ester, and resorcinol	(Meena *et al*., 2019)
Roots	Anthraquinone glycosides and flavone glycosides	(Jaydeokar*et al.,* 2014)

Table-2. The chemical composition of leaves in *Cassisa auriculata* Linn.

S. No.	Retention time (RT)	Name of the compound	Molecular formula	Molecular weight	Peak area
1.	4.04	Glycerin	$C_3H_8O_3$	92	0.16
2.	6.06	Thymine	$C_5H_6N_2O_2$	126	0.11
3.	6.17	1-Butanol,3Methyl-, formate	$C_5H_6N_2O_2$	116	0.17
4.	7.60	4H-Pyran-4-one,2,3-dihydro-3, 5-dihydroxy-6-methyl	$C_6H_8O_4$	114	0.46
5.	9.22	Benzaldehyde,4 methyl-	C_8O_8O	120	0.83
6.	10.38	2-Propenoic acid, 4-methylpentyl ester	$C_9H_{16}O_2$	156	0.12
7.	10.73	Resorcinol	$C_6H_6O_2$	110	11.80
8.	13.72	Sucrose	$C_{12}H_{22}O_{11}$	342	1.20
9.	15.07	1,6,Anhydro-β-D-glucop-yranose(levoglucosan)	$C_6H_{10}O_5$	162	0.30
10.	18.43	β-D-Glucopyranoside, methyl	$C_7H_{14}O_6$	194	0.36
11.	20.14	3-O-Methyl-d-glucose	$C_7H_{14}O_6$	194	48.50
12.	23.79	1,2-Benzenedicarboxylic acid,bis (2-methylpropyl) ester	$C_{16}H_{22}O_4$	278	1.00
13.	24.04	Benzenamine,2,3,4,5,6-pentamethyl	$C_{11}H_{17}N$	163	0.87
14.	25.20	Unknown	***	-	0.57
15.	25.87	n-Hexadecanoic acid	$C_{16}H_{32}O_2$	256	3.21

16.	26.42	Hexadecanoic acid, ethyl ester	$C_{18}H_{36}O_2$	284	0.10
17.	28.29	1-Tridecyne	$C_{13}H_{24}$	180	0.30
18.	28.41	13-Oxabicyclo[10.1.0] tridecane	$C_{12}H_{22}O$	182	0.42
19.	28.80	Phytol	$C_{20}H_{40}O$	296	0.61
20.	29.06	1-E,11,Z-13-Octadecatriene	$C_{18}H_{32}$	248	0.56
21.	29.16	13-Octadecenal,(Z)-	$C_{18}H_{34}O$	266	2.18
22.	29.58	1 Octadecanoic acid	$C_{18}H_{36}O_2$	284	0.46
23.	30.62	1,2,3,4-Tetrahydroisoquinolin-6-ol-1-carboxylic acid	$C_{11}H_{36}NO_3$	207	1.98
24.	32.26	Unknown	***	**	3.29
25.	32.44	Unknown	***	**	2.61
26.	32.82	α- Tocopherol	$C_{28}H_{48}O_2$	416	1.16
27.	35.28	N-Acetltyramine	$C_{10}H_{13}NO_2$	179	1.24
28.	35.60	Unknown	***	**	1.14
29.	37.23	α- Tocopherol-β-D-mannoside	$C_{35}H_{60}O_7$	592	14.22

scavenging of 2,2'-azinobis(3-ethyl benzothiazoline-6-sulfonic acid)(ABTS) and 1,1-diphenyl-2 picrylhydrazyl(DPPH) radical[35].

Anthelminthic properties :

Methanolic, chloroform, and petroleum ether leaf extracts of *C. auriculata* have anthelmintic action next to earthworms, with the methanolic extract exhibiting the highest anthelmintic activity[8].

Antiarthritic properties :

In Freund's complete adjuvants (FCA) induced arthritic rats, the ethyl acetate fraction of *C. auriculata* leaves (EACA) has a superior therapeutic effect on arthritis symptoms. EACA's antiarthritic properties are mediated through various pathways, including immune-suppression, anti-inflammatory, and analgesic activities, as well as improvements in joint structural and functional integrity. The quercet and gallic acid in the f ethyl acetate fraction of EACA have a promising antiarthritic effect via controlling bone degradation, possibly due to its activity[6].

Hepatoprotective properties :

In experimental hepatotoxicity, supplementation with *C. auriculata* leaf extract can protect against free radical-induced oxidative stress. Furthermore, liver pathological investigations verified the therapeutic effects of *C. auriculata* leaf extract[62]. The root extract has a substantial hepatoprotective effect in rats, possibly due to inhibiting hepatic metabolizing enzymes and antioxidant activity[27].

Nephroprotective properties :

In gentamicin and cisplastin adminis-

trations, an ethanol extract of *C. auriculata* roots showed nephroprotective action. In cisplatin- and gentamicin-induced renal damage in male albino rats, an ethanol extract of roots lowered increased blood urea and serum creatinine and restored the pathological alterations. Because of their antioxidant properties, the nephroprotective effect protect aginst of gentamicin and cisplastin induced kidney damage[3].

The plant *C. auriculata* has numerous medicinal, phytochemical high therapeutic values. We have a reference in Tamil literature saying that "*Aavaram poo poothiruka savorai kandathillai*" (If Senna blooming, there is no death) briefly depicts the importance of this medicinal plant. *C. auriculata* plant parts are used for curing many diseases and disorders. Thus to enlighten the tremendous medicinal values of this miraculous plant . A deep study, analysis and research is necessary to exploit the beneficial molecular components of the plant for human welfare.

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