



# A Review on Phytoconstituents and Biological Activity of *Cynodon Plant*

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**Abstract-** A perennial herb known as "family peace," *Cynodon dactylon*, can be found throughout India. It goes by a variety of names in different Indian languages, including Durva (Marathi), Durba (Bengali), Dhro (Gujarati), Garichgaddi (Telugu), Arukampillu (Tamil), and Shataparva (Sanskrit), among others. In traditional medical systems and ethnomedical practises, *Cynodon dactylon* plays a significant role. The plant was abundant in metabolites, particularly proteins, carbohydrates, minerals, flavonoids, carotenoids, alkaloids, glycosides, and triterpenoids. Its powder,

paste, or juice is used to treat a variety of ailments due to its extensive therapeutic properties. The entire plant of *C. dactylon* maintains a number of biological functions, including antibacterial, antimicrobial, antiviral, and wound-healing capabilities. Additionally, it has a long history of usage in traditional remedies to treat a wide range of conditions, including tumors, warts, dropsy, dysentery, hemorrhage, hypertension, hysteria, measles, and snakebite.

**KEY WORDS:-** *Cynodon dactylon*, Phytoconstituents, Biological Activity.

## Introduction

There are many medicinal plants on the earth. Many weeds in our surroundings are actually quite potent medicinal plants that can help with many of the major health issues we suffer today [1]. Herbs are the major source of healthcare for 80% of the world's population. requirements, according to a World Health Organisation assessment[2]. The traditional knowledge systems of Chinese medicine are practised in China, Unani medicine is practised in Islamic countries, and Ayurveda and Siddha are practised in India. Nations all make extensive use of herbs or plant products for therapeutic purposes. The preparation of numerous potent and strong medications uses medicinal herbs. They offer synthetic medications an option that is safer and healthier. Different portions, including the root, stem, leaf, fruit, seed, bark, etc., might provide different bioactive molecules. In the process of developing new drugs, several physiologically active chemicals from medicinal plants are essential. Additionally, medicinal plant extracts are helpful in treating several health issues [3].

The grass, *Cynodon dactylon*, is perennial and belongs to the family Poaceae. It has several therapeutic qualities. It is grown all across subtropical areas and arid regions. The whole herb, or its root and stalk, have several medicinally properties. Anabolic, antibacterial, astringent, cyanogenetic, demulcent, depurative, laxative, diuretic, and emollient are just a few of its key known qualities. For blood purification, anuria, biliousness, conjunctivitis, diarrhoea, gonorrhoea, itches, and stomachaches, traditional healers utilise *C. dactylon*. Dropsy and secondary syphilis are both treated with a decoction of the root that acts as a Diuretic [4]. **Figure 1 (*Cynodon dactylon*)**



## Scientific classification [5]

Kingdom	Plantae
Sub kingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Liliosida

Subclass	Commelinidae
Order	Cyperales
Family	Poaceae
Genus	Cynodon
Species	<i>Cynodon dactylon</i>

### Common name

In various regions of the world, *Cynodon dactylon* is also known as Durva grass, Bermuda grass, Dog's Tooth grass, Indian Doab, Scutch grass, Bahama grass, Devil's grass, Couch grass, ,Doob, and Durba [6].

### Geographical source

*Cynodon dactylon*, a graceful, persistent, perennial, creeping grass that grows all across the land, is the source of the dried plant parts that constitute durva [7]. The light sand, medium loam, and heavy clay soils are preferred by the plant *C. dactylon*. Even extremely acidic, alkaline, and saline soils can support its growth. It can't, though, grow in areas that are shaded. Soil moisture is necessary. According to numerous researchers, it has been spread throughout the warm-temperate and subtropical regions largely especially in salty environments for use as lawn grass or as fodder grass[8].

### Morphology

A resilient perennial grass called *Cynodon dactylon* that is very variable in inflorescence. Clusters 15 cm to 1 m tall are made up of 2 to 12 spikes grouped in a star pattern at the top of the stem; the spikelets, which are flat and 2 to 2.5 mm long, are arranged in 2 rows on one side of the spike and range in length from 2.5 to 10 cm. It has long, creeping stolons, or runners, that develop quickly and root at nodes. A height of 8000 feet above sea level is the maximum at which the grass can be seen growing in India. It is a tenacious perennial grass with creeping clumps that root at nodes and spread out throughout the soil's surface. It is common along walks and on the sides of roads, and it easily takes over any uncultivated land. It grows almost all year long [9].

### Macroscopical Properties

*C. dactylon* is a perennial creeping herb with wiry, thin stems. 2-4 cm are a leaf. long, 1.25–3 mm wide, slenderly linear or not divided, sharp, and velvety. It has 2 to 6 spikes that diverge from a green or purple slender ascending peduncle. The length of the grains is 1.05 mm. August through October (as well as all year) is when flowers and fruits are in season.

**Root:** The cream-coloured, fibrous, cylindrical, and up to 4 mm thick root of the *C. dactylon* plant is formed from tiny, hair-like roots.

**Stem:** Coloured yellowish green, Jointed foliage that is willowy and up to 1 mm thick, and very smooth [10].

**Leaves:** The outer wall of the leaf margin's square to the oval epidermis is irregular. The clusters of bulliform cells on the dorsal side extend deep inside the mesophyll, have thin walls, and are absent of chlorophyll. They are situated at the base of a groove between the veins. Mesophyll palisade and spongy parenchyma cannot be distinguished. One or two the mesophyll is divided by thin-walled colourless cells that extend from the bundle sheath to thin-walled parenchymatous cells at the upper and lower epidermis. Organised in a row are vascular bundles, with the exception of the median bundle.

**Powder:** Short, lignified vessels with thick walls and prickly filaments. The powder exhibits paracytic stomata. The epidermis is composed of cells that are rectangular and elongated. Simple and complex starch granules with a diameter of 4-6 mm are present in the powder [7].

**Table 1 Different species of *cynodon dactylon*: [11]**

S.No.	Different species of <i>cynodon dactylon</i>
1.	<i>Cynodondactylon</i> var. <i>affinis</i>
2.	<i>Cynodondactylon</i> (L) Pers
3.	<i>Cynodondactylon</i> var. <i>arcuatus</i>
4.	<i>Cynodondactylon</i> subsp. <i>arcuatus</i>
5.	<i>Cynodondactylon</i> var. <i>aridus</i>
6.	<i>Cynodondactylon</i> var. <i>biflorus</i>
7.	<i>Cynodondactylon</i> var. <i>coursii</i>
8.	<i>Cynodondactylon</i> var. <i>dactylon</i>
9.	<i>Cynodondactylon</i> var. <i>densus</i>
10.	<i>Cynodondactylon</i> var. <i>elegans</i>
11.	<i>Cynodondactylon</i> subsp. <i>Glabratus</i>
12.	<i>Cynodondactylon</i> var. <i>hirutissimus</i>
13.	<i>Cynodondactylon</i> var. <i>intermedius</i>
14.	<i>Cynodondactylon</i> var. <i>longiglumis</i>
15.	<i>Cynodondactylon</i> f. <i>major</i>
16.	<i>Cynodondactylon</i> var. <i>maritimus</i>
17.	<i>Cynodondactylon</i> subsp. <i>Nipponicus</i>
18.	<i>Cynodondactylon</i> var. <i>nipponicus</i>
19.	<i>Cynodondactylon</i> var. <i>parviglumis</i>
20.	<i>Cynodondactylon</i> var. <i>pilosus</i>
21.	<i>Cynodondactylon</i> var. <i>polevansii</i>
22.	<i>Cynodondactylon</i> var. <i>pulchellus</i>

23.	Cynodondactylon var. sarmentosus
24.	Cynodondactylon var. septentrionalis
25.	Cynodondactylon var. stellatus
26.	Cynodondactylon f. villosus
27.	Cynodondactylon var. villosus
28.	Cynodondactylon f. viviparu

## PHYTOCHEMICAL CONSTITUENTS

The secondary metabolites found in plants called phytochemicals are what give plants their therapeutic properties. Enzymes, ash, and proteins make up 28.17 percent of *C. dactylon's* composition. Ash has a calcium, phosphorus, manganese, sodium, and potassium content of 0.77%, 0.58%, 0.34%, and 2.08% respectively [7]. Per 400 grammes, dry grass contains 6.04% protein and 36.16% carbohydrate. In particular, it contains the phenolic phytotoxins ortho-hydroxy phenylacetic acid, ferulic, syringic, paracoumaric, vanillic, and parahydroxyl benzoic [8,12]. Other substances include vitamin C, beta-carotene, lipids, palmitic acid, and others [13].

**Whole plant** - Acidic corrosive, phytol, -ionone; mono and oligosaccharides, lignin, -sitosterol, -carotene, nutrient C, triterpenoids, arundoin, friedelin, p-coumaric, and vanillic acids, as well as palmitic and other corrosive alkaloids [14, 16, 17].

**Surface cuticular wax** - Hydrocarbons (hexadecanoic corrosive) Esters, docosanoic and eicosanoic acids, unbound ethanol, unbound aldehydes (hexadecanal), and unbound acids [15, 18].

**Aerial parts** - Flavones include apigenin, luteolin, Iso-orientin (6-C-Dglycosylluteolin), iso-vitexin (8-C-Dglycosylapigenin), and orientin (8-C-Dglycosylluteolin) [8, 15].

**Table 2 Cynodon dactylon's observed phytocomponents' biological activity: [19]**

S.No.	Compound name	Nature of the compound	Biological activity
1.	Glycerin	Alcohol	Antimicrobial and Antiinflammatory
2.	Pyran-4-one (4H), 2,3-dihydro-3,5-dihydroxy-6-methyl	Flavonoids fraction	Antimicrobial , Antiinflammatory
3.	2- iso propyl-5-methyl phenol		Antimicrobial ,Antiinflammatory Analgesic, Antioxidant , Antiseptic

			Antiacne
4.	Conhydrin	Alkaloid	Anticoronary
5.	3,methyl-1,2 cyclopentanediol	Alcoholic compound	Antimicrobial
6.	4-hydroxy-à-methyl- benzenepropanol, (R)-	Aromatic compound	Antimicrobial and Antioxidant
7.	-d-Glucopyranoside, ethyl	Sugar moiety	Preservative
8.	Tetramethyl-2- hexadecen-1-o-3,7,11, and 15	Terpene alcohol	Antiinflammatory and Antimicrobial
9.	n-Hexadecanoic acid	Palmitic acid	Hypocholesterolemic , Antioxidant Nematicide , Pesticide ,Anti- androgenic
10.	Acid hexadecanoic, ethyl ester	Ester of palmitic acid	No activity was reported
11.	Phytol	Diterpene	Antimicrobial , Anti-inflammatory , Anti-cancer ,Diuretic
12.	Ethyl esters of linoleic acid	Ester of fatty acids	Nematicid , Hypocholesterolemic, Anti-arthritis, Hepatoprotective, Anti- androgenic, ,Anti-histaminic, Anti- coronary
13.	octadecadienoyl chloride (9,12), (Z,Z)-	chlorolinoleic acid	No activity was reported
14.	ethyl ester of octadecanoic acid	Ester of stearic acid	No activity was reported
15.	the 2-methyl-pentanal compound	Aldehyde mixture	Anti-microbial
16.	Cyclopentanol, 1- (Cyclopropyl nitromethy l)	Compound of nitrogen	Anti-microbial
17.	N-[2-	Amide substance	Anti-microbial

	(dimethylamino)ethyl] 2-Propenamide-		
18.	2-hydroxy-1-(hydroxymethyl)ethyl ester of hexadecanoic acid	Formulation of fatty acid ester	No activity was reported
19.	phthalate of didodecyl	compound of plasticizer	Infection Control Anti-fouling
20.	13-Tetradecene-11-yn-1-ol	alcohol-based substance	Anti-microbial
21.	10-Undecyn-1-ol	alcohol-based substance	Anti-microbial
22.	Squalene	Tri-terpene	Anti-cancer, Anti-microbial, Anti-oxidant, Chemo-preventive, Anti-tumor
23.	Phenylmethyl ester of 9,12-octadecadienoic acid (Z,Z)	an ester of linoleic acid	Hypocholesterolemic, Nematicide, Anti-arthritis, Anti-androgenic, Hypocholesterolemic, Anti-coronary, Antiacne
24.	Diazo-progesterone	Nitrogen-containing substance	Anti-microbial

Table 3 Chemical constituents present in the *C. dactylon* grass

S.No.	Extract	Plant parts	Chemical constituents	Reference
1.	Hydroalcoholic extract	Whole plant	Linoleic acid, d-mannose, hexadecenoic acid, and ethyl ester Methanol, benzoic acid, 4H-pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl, and 3H-pyrazol-3-one, 2,4,5-trimethyl Benzofuran, 2,3-dihydro-2-furancarboxaldehyde, 5-hydroxymethyl-2-methoxy-4-vinylphenol, decanoic acid, ethyl ester, and d-mannose are only a few examples of compounds. Aetumerone, tumerone, curlone, tricyclo[6.3.0.0(1,5)], 3-tert-butyl-4-hydroxyanisole Tetramethyl, 2,3,5,9-	19,20,21

			tetramethyl undec-2-en-4-one, and tetramethylinoleic acid ethyl ester, phytol, hexadecenoic acid ethyl ester, and octadecadienoic acid ethyl ester.	
2.	Phenolic fraction		p-nitroic acid oxofurfural, pentanoic acid, pantolactone, 5,6-dihdropyran-2-one, Levoglucosenone, hexanediamide, N,N'-dibenzoyloxy, and 4-oxofurfural 2-furancarboxaldehyde, 5-methyl, propanedioic acid, phenyl, hydroquinone, phthalic acid, 3-hydroxy-1-methylpyridinium hydroxide, 1,3-benzenediol, 5-chlorobenzaldehyde, 3-(chloroacetoxy)-4-methoxy, ethenone, 1-(4-hydroxy-3-methoxyphenyl), 1,6-anhydro- $\alpha$ -Dglucospyranose, vanillic acid, 1-(2-hydroxy-4,5-dimethoxyphenyl)ethenone, syringic acid, pyrrolidine-2-one, nona-2,4dione.	22,23,24,25
3.	Chemical Compound found in the Cynodon dactylon using GC-MS	Leaves	Conhydrin, 1,2-cyclopentanediol, 3-methyl, 4-hydroxy- $\alpha$ -methyl-R-ethyl, $\alpha$ -dglucopyranoside, 2,3-dihydro-3,5-dihydroxy-6-methyl thymol, 4H-pyran-4-one, Tetramethyl-2-hexadecen-1-ol, 3,7,11,15-tetramethyl-n-hexadecanoic acid, ethyl ester, phytol, and linolic acid ethyl ester octadecanoic acid, ethyl ester, pentanal, 2-methyl, 9,12-octadecadienoyl chloride, N-[2-(dimethylamino)ethyl], 1-(cyclopropyl-nitro-methyl)-	19

			cyclopentanol, and 2-propenamide Didodecyl phthalate, 2-hydroxy-1-(hydroxymethyl)ethyl ester, and hexadecanoic acid Squalene, 10-undecyn-1-ol, 13-tetradec-11-yn-1-ol, and 9,1	
4.	Others		Alkaloids, Glycosides, terpenoids, triterpenoids, steroids, saponins, tannins, resins, phytosterols, reducing sugars, carbohydrates, proteins, volatile oils, and fixed oils are some of the other compounds found in plants.	30

### Biological activities of *cynodon dactylon*

Numerous grasses can be found in various regions of India and contain a variety of pharmacologically active substances. It is used as a traditional kind of treating a range of microbiological illnesses and ailments with traditional remedies. For various therapeutic effects, dried extracts of *C. dactylon* aerial parts were tested [26]. Several mice were used in the experiment. Some of the plant's stated properties include antiseptic, anti-allergic, wound-healing, stringent in nature, anti-oxidants, immunomodulatory, antidiabetic, and cancer-fighting properties, antidiabetic, antiulcer, analgesic, diuretic, and anti-pyretic, as well as antibacterial properties [27]. It has also been observed that *C. dactylon* is particularly useful in treating snakebites, and the plant extract of *C. dactylon* is effective in preparing anti-venom to treat people who have been bitten by a snake. Antioxidant and anti-inflammatory effects were also mentioned as other notable activities [28]. The treatment of numerous skin infections and wounds makes considerable use of medicinal plants. It is applied externally in cases of burning, cuts, wounds, and many different skin complexion issues like depigmentation. In cases of piles, sores, and headaches, a paste made from the aerial section of the *C. dactylon* plant is applied directly to the forehead. Fresh juice is reportedly also used as an eye drop for catarrhal diseases and occasionally as nose drops to prevent nasal haemorrhage, according to some reviewers. The plant extract is also used to strengthen the uterus, stop abortions, and regulate uterine haemorrhage. The website herbal cure india mentions *C. dactylon* as a viable choice for treating UTI infections [29].

**Anti-diabetic activity:** An analysis found that the water-based extract of *C. dactylon* has a strong anti-diabetic potential as well as notable hypoglycemia and hypolipidemic effects. In addition, it was shown that in severely diabetic rats, the levels of The fatty acids, low-density lipoprotein, or lipoprotein, and the total amount of cholesterol all decreased by 35, 77, and 29%, respectively, while the levels of high-density lipoprotein (HDL) raised by 18% [30].

**Anti-inflammatory and Antipyretic activity:** Rat hyperthermia caused by yeast, acetic acid, and trembling were used to test the analgesic and antipyretic effects of *C. dactylon* aqueous extract at various doses. In all the models examined, *C. dactylon* demonstrated strong analgesic and antipyretic effects. The large amounts of amino acids and polyphenols in *C. dactylon* samples may be the cause of their anti-inflammatory effects. Most of the catalysts in the immune system caused by the inflammation regulation system are capable of being obstructed by flavonoids and glycosides [30].

**Antiarrhythmic activity:** When administered during 30 minutes of ischemia and 30 minutes of reperfusion, *C. dactylon* roots extract of hydro alcohol exhibits antiarrhythmic properties against I/R-induced palpitations and also produces a noticeable decrease in the duration of the frequency of whole VF and reversed VF at the moment of restoration. The antiarrhythmic effects of *C. dactylon* were concentration-dependent and reversely correlated with ischemia and reperfusion phases, with lower concentrations exhibiting stronger effects [31].

**Antiulcer activity:** The plant extract's ability to treat ulcers may be attributed to its antisecretory properties, which were comparable to those of the H<sub>2</sub>-antagonist drug ranitidine in terms of their promotion of the local healing process. There is evidence that flavonoids have antiulcer properties [32]. Root decoctions are utilised for secondary syphilis and urinary organ discomfort [33].

**Nephrolithiasis Activity:** Leaves and rhizomes of *C. dactylon* have been reported to be effective in treating bladder injuries, kidney stone dissolution, and dysuria [34,35]. According to a study, the EA fraction of *C. dactylon* prevented the development of CaOx calculi in the kidney of rats. Additionally, *C. dactylon* NB fraction and RNB showed a treatment for the breakdown of CaOx calcium deposits in the urinary tract as a result of EG consumption by reducing CaOx the calcium deposits count in the treatment sample [34,36].

**Activity on Immunomodulator :** The amino acid component that keeps Swiss whitish mouse while healthy of *C. dactylon* significantly induced immunomodulatory activity. The protein fraction was delivered intraperitoneally, and By measuring humorous topics and cytoplasmic immunological responses to pathogenic stimuli using sheep the red blood cells, as well as by the neutrophil adsorption test, immunomodulatory effectiveness was assessed. The test measures, such as the Haemagglutinating antibodies titer, delay phase sensitivity action, and neutropenia assay, all increased significantly [17]. An experiment revealed that the immunosuppression brought on by pyrogallol in Balb/c mice could be significantly avoided by daily administration of 70 l of the ethyl acetate fraction of *C. dactylon* polyphenols [37]. phenolic content of fresh *C. dactylon* juice, which contained 1.46% (w/w) solids, was 470.33 mg/kg GAE. According to DNA spectral studies, the juice shielded human DNA corresponding to doses of 50, 100, and 200 mg total solids/kg weight of the individual from doxorubicin-induced DNA damage. In specimens previously treated with the fluid, the proportion of DNA intensity at 260 and 280 nm was 1.66, 1.53, and 1.63, respectively, as opposed to 1.37 for DNA exposed to cyclophosphamide alone. Consumption of the nectar at levels of between 250 and 500 mg/kg in Balb/c mice of various ages resulted in an improvement in humoral antibody response to antigen stimulation as measured by a rise in the concentration of antibodies in the haemagglutination receptor assay and plaque -forming cell assay. [38].

**Antiviral activity:** *C. dactylon* has both the individual's virus that causes vaccinia and the White Spot Syndrome Virus (WSSV) to have protective properties. *P. monodon*, a type of black tiger squid, is the experiment were fed the plant extract of *C. dactylon* at a concentration of 1% or 2% together with artificial pellet feed. The shrimp meat was contaminated with the WSSV. At the conclusion of the experiment, a Western blot analysis, bioassay, and PCR method were used to demonstrate the presence of WSSV infection. According to the study's findings, black tiger shrimp were completely resistant to WSSV infection and showed no indications of WSD or death when treated with a plant[39].

**Cardioprotective activity:** The effects of plant rhizome hydroalcoholic extract on heart activities in mice with right-heart failure and contractility of the heart in healthy hearts were investigated. In the treated rats, peripheral cyanosis, tiredness, and dyspnea were all significantly reduced. In the groups treated with extract, the survival rate was high (90%). When *C. dactylon* was administered to rats that had received monocrotaline injections, the cardiac functions significantly improved as evidenced by lowered increased mean blood pressure and right ventricle end- diastolic pressure increase. The results of the research showed that *C. dactylon* dramatically decreased the risk of right heart disappointment, in part because it had a positive inotropic effect and improved cardiac functioning. [40].

**Wound Healing activity:** The efficacy of doob to cure wounds was examined using the injuries from resection and repair models from rats. By promoting The completion of an injury and accelerating the time it takes for a wound to shut, the results indicated that it has healing capability comparable to that of framycetin sulphate 1% cream [41]. Topical application of honey, *Azadirachta indica*, and *C. dactylon* extracts to wounds significantly accelerates the rate of wound healing. 6.0% determined to be of watery *C. dactylon* isolates are the most efficient concentration for simulations of surgery, surgical removal, and vacant injuries[42]. **Anticonvulsant activity:** The central nervous system (CNS) functions of mice were examined in relation to the ethanolic extracts of *C. dactylon* aerial parts. The extract significantly depressed the mice's general behavioural characteristics. It greatly increased sleep duration in mice that were produced by common hypnotics such as the substance meprobamate, and sodium pentobarbitone in an influenced by dose way. By potentiating the analgesia in mice brought on by morphine and pethidine, it also demonstrated a notable improvement in analgesic efficacy [43].

**Anti-microbial activity:** In vitro antibacterial properties against bacteria like *E. coli*, *Staphylococcus aureus*, and *Bacterial pyrogens* were investigated using the leaf extract of *C. dactylon*. The extract performed best at a 10% concentration, and the antibacterial mixture it produced was effective. To assess the anti-microbial activities of aqueous extracts of *C. dactylon* on various microorganisms, including *Pseudomonas aeruginosa*, *Staphylococcus Proteus mirabilis*, *K. pneumoniae*, *E. coli*, *Staphylococcus aureus*, among others, and, various concentrations of the plant were used [28].

Its hydro-alcoholic properties have bactericidal extracts that were investigated *Staphylococcus aureus* and *Ococcus albus*, two Gram-positive bacteria; *Pseudomonas aeruginosa* and *Escherichia coli*, two Gram-negative bacteria; and well diffusion of agar and microdilution on every strain. In essence, it showed that the effects of the extract were particularly susceptible to all bacterial species. [44].

In a different study, biologically active components found naturally in the leaves of plants were examined for their ability to fight off microbial pathogens such as bacteria. Using six different types of organic solvents, the bioactive components were extracted. The butanolic extract of the leaves was the most successful, followed by the extracts from ethyl ester, methanol, petroleum ether, and chloroform [45].

**Activity on the central nervous system :** The The ethanolic extract of the apical portions of *C. dactylon* has therapeutic properties. were examined, along with the effects on catecholamine levels and brain amino acids in mice. It demonstrated the protective quality in contrast to the high levels of convulsions or involuntary muscular spasms caused by several chemotherapy drugs in mice [46].

The dehydrated aerial extracts of *C. dactylon* were used to examine CNS-related behaviours in mice. To investigate its associated CNS depressants, the ethanolic aerial extracts were estimated. It turned out to be the main reason for the seeming breakdown of mice's typical behavioural profile [47].

**Dermatological activity:** Albino rats were used in the study to examine the ability of *C. dactylon* to treat dermatological wounds classified as wounds by excision and wounds by incision. They received treatment using a gel prepared from the *C. dactylon* plant's alcoholic and water extract. Both wounds from incision and excision healed quickly as a result of it [22].

By administering mice the flavonoid concentrate of *C. dactylon*, the capacity for healing both excision and incision wounds was also assessed. For a week, the wound received daily external application of the flavonoid concentrate. The body's increased production of protein and collagen together with the decrease in lipids In granulated the skin, per oxide demonstrated how The advantages of polyphenols aided in the healing process [48].

**Anti-oxidant activity:** The Anti-oxidant activity of plants was assessed through animal study and a variety of tests, including the scavenging of DPPH radicals and nitric acid scavenging activity, superoxide Utilising a hydro-alcoholic preparation of its apical section, researchers examined the plant's ability to scavenge radicals via anion, chelate iron, scavenge hydrogen peroxide, perform the ABTS assay, and scavenge hydroxyl radicals. They found that all of approaches as described above were effective in scavenging free radicals in a concentrated dependent way. Extreme inhibition using the The antioxidant capacity equivalent to the identical quantity of vitamin C in gramme of aerial extract was found to be 172.39 mg, and the superoxide anion radical technique revealed a 93.33% reduction in superoxide[49].

**Anti-diarrheal activity:** In the study, albino rats were used to investigate complete plant extracts for antidiarrheal efficacy on the effects of oil from castor beans diarrhoea in hexane, dichloromethane, ethyl acetate, and methanol. The methanolic extract significantly decreased gastrointestinal motility and demonstrated a significant reduction in the suppression of castor oil-induced diarrhoea. According to these findings, the herb has potent anti-diarrheal properties [50].

**Anticancer activity:** Swiss albino mice that had been given Ehrlich ascites carcinoma (EAC) cells as an inoculum were applied to evaluate the effectiveness of the *C. dactylon* extract. 100, 200, and 400 mg/kg of the material were administered in each of the amounts.—were given orally to the cells over the course of ten

days. According to mice mean survival time (MST), The plant isolates' antitumor efficacy was proven. and increased. Strong anti-tumour activity was shown by HT-29 normal intestinal tumour cells in 52.6% of cases. when exposed to a An ethanol-based extract of plant with an amount of 0.625 mg/ml. Swiss albino mice with ascitic lymphoma (ELA) were exposed to methanolic extracts of the leaves of *C. dactylon*, and tumours generated in the EAC were administered through the abdomen to mice (1 10<sup>6</sup> cells/mouse). The findings showed that *C. dactylon* methanol based solution had a substantial anticancer and hepatoprotective impact [51].

**Miscarriage and Menstruation:** Problem To treat menstruation problems, whole plant decoction has been administered orally [52]. Melena, thirst, anorexia, scorching body feelings, pruritis, miscarriage, and erysipelas are among the conditions for which the plant is reputedly used in India [53,54].

**Hepatoprotective activity:** Increase in blood lipids and levels of bilirubin was significantly reversed by the ethanolic extract of *C. dactylon*. The extract also prevented the group that had consumed carbon tetrachloride from having less ascorbic acid secreted in their urine. Animals treated with ethanolic extract suffered minimal liver damage, which left the structural integrity of the liver cells unharmed. Researchers came to the conclusion from this study that The maintenance of the internal strength of the hepatocytes' cell walls may be the cause of the extract's action., which would therefore maintain the liver's normal function [8].

**Conclusion:** *C. dactylon* is a key component of traditional medical systems and ethnomedical practices. It is beneficial for a number of illnesses and ailments. The species can be easily researched for human benefits in its natural habitat because it is an invasive grass that doesn't require cultivation. Worldwide experts have investigated the pharmacology and pharmacological characteristics of this plant. As a result, this grass still requires additional research in areas such as validation, standardisation, therapeutic benefits, and phytochemical analysis. The use of medicinal plants as a means of illness prevention has been around since the dawn of civilisation. The pharmacological, pharmaceutical, and therapeutic aspects of that plant were adequately covered in this review study. It could be employed as a cutting-edge medicine in the near future to treat a variety of illnesses, including cardiovascular, wound healing, anticancer, antiulcer, anti-diabetic, antibacterial, antimicrobial, and antiviral conditions. That adaptable therapeutic plant is the only known from a wide range of compounds, further research is required to take advantage of its therapeutic potential to treat disease.

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