

A Review of the Pharmacological and Nutraceutical Properties of *Cynodon dactylon*

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ABSTRACT

Background: *Cynodon dactylon* is the scientific name of the common perennial grass whose lustre of green pasture covers the land. In layman's language, it is seen as a surface pasture in a sports field, garden lawns or terrace gardens, or as an unwanted weed in gardens. Many are unaware of its phytoconstituents, pharmacological and nutraceutical properties which progressively make science to aim for *C. dactylon*'s enormous nutraceutical potential in curing problems like ulcers, diabetes, arrhythmia, diarrhoea, inflammation, edema and etc. **Objectives:** To discuss the constituents of phytochemicals and nutraceutical properties of *C. dactylon* with its curative investigation for various common ailments. **Materials and Methods:** Different kinds of extracts i.e. aqueous extract, ethanolic extract, alcoholic extract, hydro-alcoholic extracts etc. of *C. dactylon* were taken into account to study their curing potential against ailments organically. **Results:** Having its origin from east of Africa, it contains large amounts of biologically active compounds or phytochemical compounds, which has attracted many researchers to study its curative nutraceutical properties. Experiments conducted on animals have resulted in the effect of *C. dactylon* is, in the field of whether treating ailments or healing up excision or incision wounds, reducing ulcers, or improving the functioning of the muscular system and the circulatory system of the body. **Conclusion:** Biologically active phytoconstituents in *C. dactylon* effective against the bodily ailments and are of high importance once the products are made easily available.

Key words: *Cynodon dactylon*, Nutraceutical, Pharmacological, Phytoconstituents, Extracts.

INTRODUCTION

Since a few decades, there has been a shift of interest by the researchers and scientists towards the medicinal properties embodied by plants. They have been useful in the long term without any side effects also helped in positive productivity in one's health lifestyle after being implemented. Diverse and various compounds which are biologically active and possess medicinal properties are obtained from plant origin. Anti-diabetic, anti-ulcer, anti-arrhythmic, anti-inflammatory and antioxidant are nutraceutical compounds extracted from plants. *C. dactylon* is one the plant which possesses nutraceutical properties abundantly. In the analysis of *C. dactylon*, phytochemicals like proteins, carbohydrates, terpenoids, flavonoids, alkaloids, saponins, glycosides, steroids, tannins and resins are seen to be present. It is also known as, Indian doob, durva grass, Bahama grass, Bermuda grass, wiregrass, villain's grass, dhoob, love seat grass, vilfastellata, grama, dubo, scutch grass, arugampul and canine's tooth grass. It aids inexpedient in bronchitis, leucoderma, widening of the spleen, bad breath, piles and asthma. It is suggested to use the curative property in the field of homeopathy to heal nearly all kinds of bleeding in addition to skin problems.^[1]

Apart from the healing property it exhibits, it is traditionally used in worship chores in countries like India, Sri Lanka, Bangladesh, Bhutan and Nepal. The taxonomical classification *C. dactylon* is mentioned in Table 1.

C. dactylon was generally known to be in the east of Africa. It was then distributed extensively at above the sea level of 2000 meters of height or altitude. It is one kind of monocot weed that is inherent to Africa. Though it is not an inhabitant of Bermuda, it is a profuse obtrusive species there. It is set out to have landed in North America from Bermuda as pasture grass. It got transferred or distributed to the temperate and subtropical part of the world from east of Africa. It started to grow along the coastal region in the temperate parts and in the tropical areas where 650-1750 millimetres of rainfall was seen. It also grew along the riverside and the landscape regions irrigated in the arid zones of the Earth. It generally prefers warm weather with high light intensity. It can grow nearly anywhere in the world between about 30° S and 30° N scope and it can tolerate annual precipitation of 10 to 430 cm. It is indeed a perennial, monocot warm weather grass that occurs on almost all kind of soil types.^[4]

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Table 1: Taxonomical classification of *Cynodon dactylon*.

Kingdom	Plantae	References
Sub kingdom	Tracheobionta	[2,3]
Super division	Spermatophyta	
Division	Magneliophyta	
Class	Liliosida	
Subclass	Commelinidae	
Order	Cyperales	
Family	Poaceae	
Genus	<i>Cynodon</i>	
Species	<i>Cynodon dactylon</i>	

Table 2: Types of *Cynodon dactylon*.

Type name	Type	Profile	References
Midland	Coastal + Winter hardy	Tall, leafy	[8]
Hardie	-	Sterile, pH < 5	
Guymon	Established by seeding	Dense tillering, good winter hardiness	
Wrangler	Seeded Variety	Good forage yield, average winter hardiness	
Greenfield	Established by sprigging	Good cold tolerance, dense sod, good stand capacity	
Tifton 44	Coastal + winter hardy	Leafy, tall, better yield, good stand	
Midland 99	Hay type	Cold tolerant, average forage quality	
Quick stand	Winter hardy	Used for turf, erosion control, very dense sod	
World feeder	Moderate winter hardy	Inferior forage yield	

Table 3: Phyto-constituents present in *Cynodon dactylon*.

Solvent/ methods used for extraction	Phyto-constituents obtained	Amount obtained	References
Gas chromatography-mass spectrometry (GC-MS)	Propane-1,2,3-triol	38.49%	[36]
	Linoleoyl chloride	15.61%	
	Ethyl acetate	9.50%	
	Ethyl hexopyranoside	8.42%	
	Ethyl linoleate	5.32%	
Ethanol	Phytol	4.89%	
	Tricosane	22.05%	[26]
	1, 2-propanediol	20.30%	
Hydro-alcoholic	3- benzyloxy-1, 2 diacetyl	12.62%	
	hexadecanoic acid,	17.49%	[26]
	D-mannose	11.48%	
	Linolenic acid	11.28%	
Phenol	Hydroquinone	69.49%	[9]
	Furfural	6.0%	
	Levoglucosenone	2.72%	

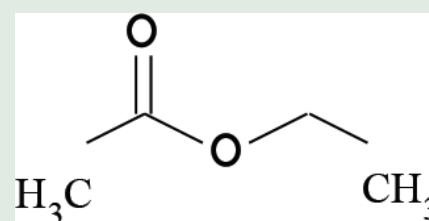
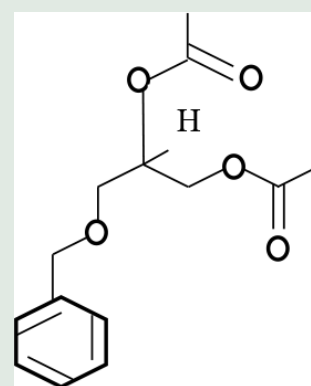
Development of *C. dactylon* starts at temperatures around 15°C with ideal development somewhere between 24°C and 37°C. In winter, due to a reduction in temperature and the intensity of light, the grass becomes lethargic and turns darker. Longer duration of bright sunshine hours exerts a positive influence on the growth of this kind of grass. On another contrary, development is hindered by shade, e.g., near large tree trunks.^[5] It is generally one foot tall. The grass has a high drought and alkali tolerance property and the fast capability to heal from damage enduring elevated temperature, which explains its success as a turfgrass in sports grounds.^[6]

The edges are sharp and unpleasant. It has dark green shading and is short. The erect stems can grow tall from 1–30 centimetres.^[7] The almost straightened stems are mostly tinged in purple shading. In a group of two to six spikes, seed heads are erected at the highest point of the stem, where each spike is 2–5 centimetres in length. The root framework is profound and during parched spell circumstances with porous soil, it can develop to more than 2 metres (6.6 feet) profound. In most circumstances, the major part of the root mass is under 60 centimetres (24 inches) under the surface. The seed headings are in a cluster of spikes at the aerial part of the stem lengthening from 2–5 centimetres. Along the ground, the grass scuttles by its stolon and the roots if they contact any place on the ground, shapes into a thick tangle. Seeds, stolons and rhizomes recreate *C. dactylon*.^[8] Some varieties of *C. dactylon* with their prominent profile are enlisted in Table 2.

Phytochemical properties of *Cynodon dactylon*

Different morphological parts of *C. dactylon*, most evidently provided many recognized phytoconstituents. Minerals, carbohydrates, proteins, carotenoids, phenols, terpenoids, flavonoids, alkaloids etc. are some of the plant compounds.^[9] Quantification of other procured phytoconstituents is mentioned in Table 3.

Chemical structures of bioactive compounds present in *C. dactylon* are shown in the Figures (1-23).

**Figure 1:** Ethyl acetate.**Figure 2:** 3-benzyloxy-1, 2-diacetyl.

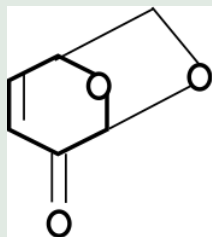


Figure 3: Levoglucosenone.

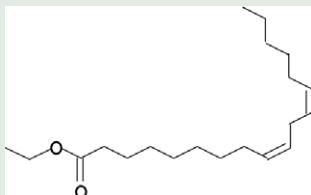


Figure 4: Ethyl linoleate.

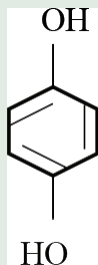


Figure 5: Hydroquinone.

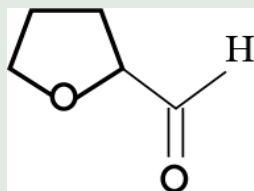


Figure 6: Furfural.

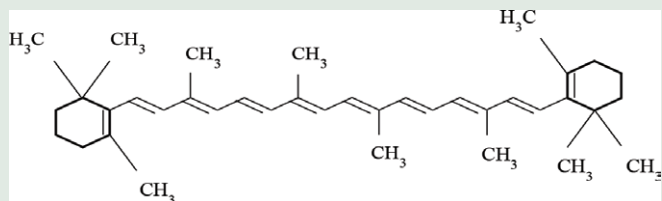


Figure 7: Beta-carotene

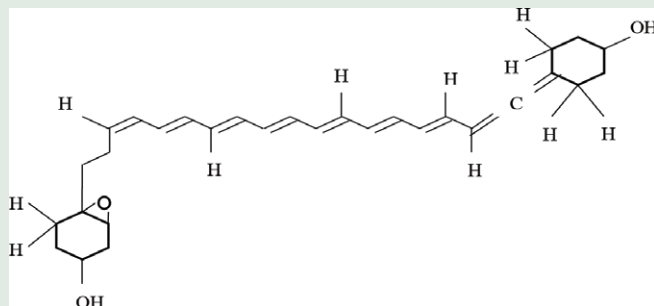


Figure 8: Neoxanthin.

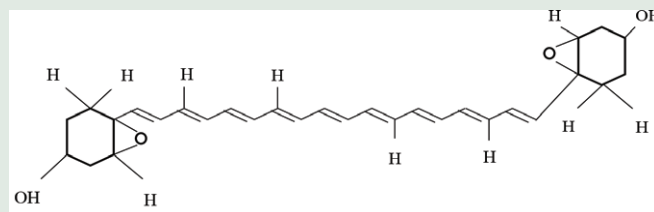


Figure 9: Violaxanthin.

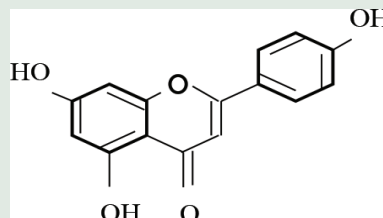


Figure 10: Apigenin.

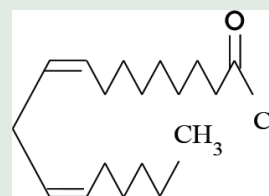


Figure 11: Linoleoyl chloride.

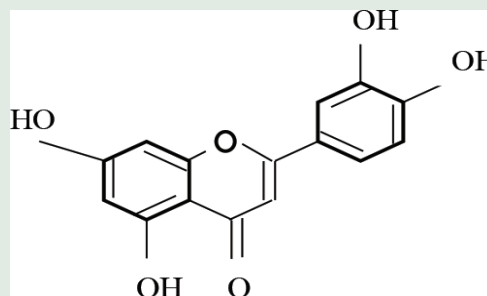


Figure 12: Luteolin.

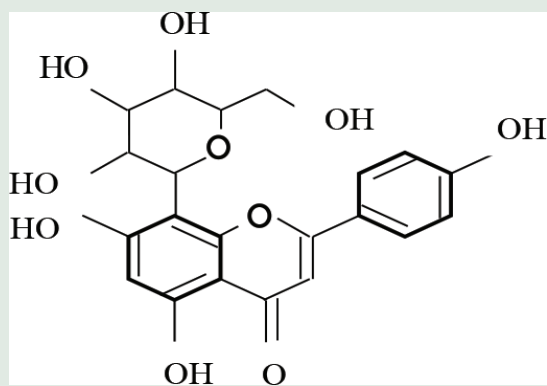


Figure 13: Vitexin.

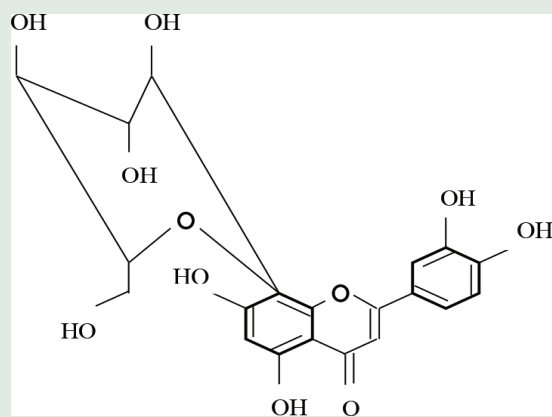


Figure 14: Orientin.

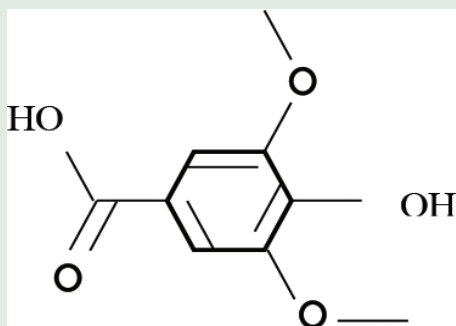


Figure 15: Syringic acid.



Figure 16: Tricosane.

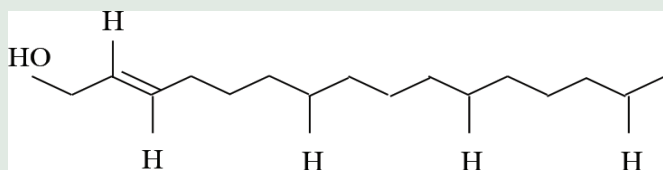


Figure 17: Phytol.

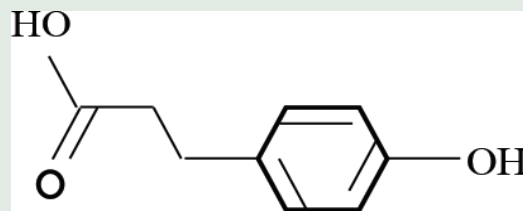


Figure 18: Paracoumaric acid.

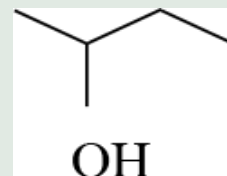


Figure 19: 1, 2-propanediol.

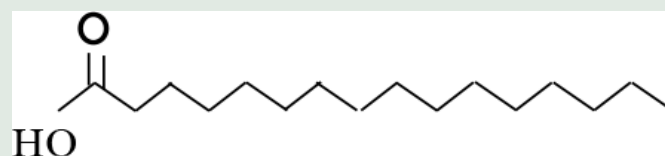


Figure 20: Hexadecanoic acid.

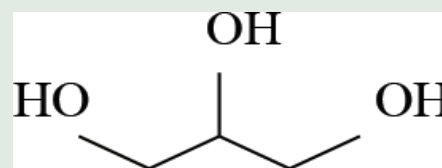


Figure 21: Propane-1, 2, 3-triol.

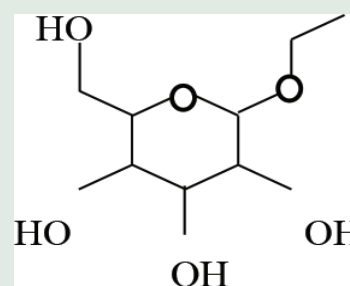


Figure 22: Ethyl hexopyranoside.

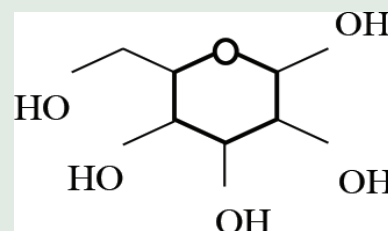


Figure 23: D mannose..

Table 4: Pharmacological action of *Cynodon dactylon*.

Excerpts	Plant parts	Biological Action	References
Aqueous	Entire plant	Anti-pyretic	[42]
Aqueous	Entire plant	Analgesic	[42]
Aqueous	Leaflets	Anti-microbial	[15]
Methanolic	Rootstock	Anti-cancer	[36]
Phenolic	Entire plant	Vasodilatory	[11]
Aqueous	Rhizomatous stem	Anti-diuretic	[2912]
Aqueous and non-polysaccharide fraction	Entire plant	Anti-diabetic	[10]
Aqueous and ethanolic	Aerial parts	Anti-diabetic	[12]
Ethanolic	Aerial parts	Central nervous system	[32]
50% aqueous-50%ethanolic	Aerial parts	Nephrolithiasis	[26]
Ethyl acetate fraction	Leaflets	Antioxidant	[26]
Hydro-alcoholic	Aerial parts	Antioxidant	[36]
Ethyl-acetate fraction	Aerial parts	Antioxidant	[26]
Ethyl-acetate fraction	Leaflets	Immuno-modulatory	[26]
Ethanolic, butanolic and methanolic	Leaflets	Anti-bacterial	[27]
Hydroalcoholic	Entire plant	Anti-bacterial	[26]
Aqueous	Entire plant	Anti-inflammatory	[41]
50% ethanolic	Entire plant	Anti-inflammatory	[39]
Chloroform-methanolic	Entire plant	Anti-inflammatory	[42]

The phytoconstituents present in *C. dactylon* are usually pharmacologically active, which leads to biological actions responsible for its nutraceutical properties. The corresponding biological action due to its pharmacological nature is listed in Table 4.

Nutraceutical and pharmacological properties of *Cynodon dactylon*

C. dactylon, as mentioned earlier, is an excellent source to avail its brilliant nutraceutical properties. Many researchers and scientists have done analytical examinations and experiments with the parts and extracts of *C. dactylon* on animals, as animal sources are easy to be kept, avail, suitable and they also are very adaptable to different environments.

Anti-diabetic activity

It has been attested numerous times that *C. dactylon* holds hypoglycaemic properties that help efficiently handle sugar level in the blood and reduce fatigue. The juice of this plant mixed along with neem juice is very good for the health as it assures to maintain the blood sugar level.^[14]

The anti-diabetic effect lowered hyperglycaemia, by 70% ethyl extract of roots and stems of *C. dactylon*. It was found that in diabetes, a joint combination of 10 mg/kg of xylazine and 60 mg/kg of ketamine exhibited an anti-diabetic effect. To treat the mice, 50 mg/kg and 100 mg/kg of this extract were used and both the administered amount of extracts had a substantial decreasing effect on the blood sugar level. The first dose's

impact was seen to be more effective on the mice, as its effect was just like insulin.^[15]

Moreover, the diabetic rats faced prominent decreased levels of cholesterol, glucose, urea, triglyceride, high-density lipoprotein and low-density lipoprotein due to the effect of non-polysaccharide and aqueous extract of *C. dactylon*.^[16]

The effect of 250 mg/kg, 500 mg/kg and 1000 mg/kg of the aqueous extract was examined in the rats having diabetes. The investigation concluded that the dose of 500 mg/kg given orally was more effective.^[17] In normal rats, it lowered sugar level in the blood by 31%, after 4 hr of the administration.^[18]

Diabetic rats given streptozotocin were treated for the anti-diabetic effect with the ethanolic concoction of root stalks of *C. dactylon*. The examination disclosed that 500 mg/kg of the extract, which showed anti-hyperglycaemic activity, was prominently analogous to tolbutamide drug, which is meant to be a standard.^[19]

Cardiovascular activity

In a research study, it was found that the rhizome part of *C. dactylon* existed in use to cure heart failure in traditional medicine. It wielded a sturdy protective upshot on heart failure patients, by accompanying positive action of muscle contraction and refining the heart's functions.^[20]

Further to examine the normal heart contractility and the cardio-related functions, the after-effects of *C. dactylon*'s rhizome's hydro-alcoholic extracts were testified. When administrated to the rats, the extracts headed to insightful improvement in heart functions, which was verified with the help of reduced right ventricular end-diastolic pressure and raised mean arterial pressure. The extract also showed that it helped reduce congestion, of the lung and the heart.^[21]

The potential haemostatic activity of *C. dactylon* was premeditated in albino rats of both the control and test group. The control group's bleeding time was generally noted to be 160.5±8.3 second and the clotting time was marked at 507.6±18.2 second. The haemostatic effect of *C. dactylon* in, the test group was observed to be decreasing both the bleeding and clotting time to 96.8±10.3 second and 319.3±27.1 second, respectively.^[22]

Anti-arrhythmic activity

Ischemia is a state where a body tissue in which it abstained from blood flow for a little moment. In contrast, reperfusion is damage caused to the body tissue due to the flow of blood returning to the ischemia region. Ventricular tachycardia is a state of the heart. The lower chambers, the ventricles beat in an increased speed, whereas, ventricular fibrillation is a fatal phenomenon of the heart, where it beats in a hasty speed and can lead to a heart attack.^[23]

The probability of the anti-arrhythmic effect of extracts of *C. dactylon* was testified on the isolated heart of rat induced with ischemia and reperfusion. Then the rat hearts were exposed to ischemia and reperfusion regionally for 30 min respectively with the *C. dactylon*'s rhizomes' hydro-alcoholic extracts in the fraction of 25 µg/ml, 50 µg/ml, 100 µg/ml and 200 µg/ml. The hydro-alcoholic extract yielded insight deduction in the numbers, time period and the incidence of ventricular tachycardia respectively at first two doses; also it lowered the aggregate number of the ventricular beats through ischemia when treated with all the doses respectively except 200 µg/ml. Through reperfusion, the frequency of ventricular tachycardia occurrence reduced to 13% and 33% from 100%, when treated with the first two doses respectively. Apart from this, it was seen that it reduced the chance of ventricular fibrillation with the same rate at the same given concentrations.^[24]

It was observed that *C. dactylon* also helped in reducing up the bleeding time and clotting time, too, while testing its haemostasis property on albino rats.^[22]

Anti-microbial activity

The extract of *C. dactylon*'s leaves was used to examine the *in vitro* anti-bacterial effects counter to micro-organisms like *Streptococcus pyrogenes*, *Staphylococcus aureus* and *Escherichia coli*. The most effective concentration of the extract was 10% which worked efficiently as an anti-bacterial concoction. Micro-organisms like *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Candida albicans*, *Escherichia coli*, *Proteus mirabilis* and *Klebsiella pneumoniae* were taken to evaluate the anti-microbial effects on them with 50 to 400 mg per ml of *C. dactylon*'s aqueous extracts.^[25]

Two Gram-positive bacteria, namely *Staphylococcus aureus* and *Staphylococcus albus* and two gram-negative bacteria, *Pseudomonas aeruginosa* and *Escherichia coli* were studied for the anti-microbial effect of its hydro-alcoholic extracts by well agar diffusion and microdilution. It resulted effectively, showing that all the microbial strains were profoundly sensitive to the extract's action.^[26]

In another study, bioactive compounds in nature in *C. dactylon*'s leaves were tested for its anti-microbial property counter to microbial pathogens like *Pseudomonas aeruginosa*, *Escherichia coli*, *Bacillus subtilis*, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Klebsiella pneumoniae* and *Proteus mirabilis* by a method of the paper disc. The bio-active compounds were extracted using organic solvents of six different types, among which the most effective was the butanolic extract of the leaves and then followed by ethyl ester extract, methanol extract, petroleum ether extract and chloroform extract.^[27]

Anti-ulcer activity

In research, to study the anti-ulcer property of *C. dactylon*, rats were induced to have gastro-intestinal ulcers by feeding them indomethacin. The standard drug, famotidine, was used as a reference to the anti-ulcer effect. To study the anti-ulcer effect, 50% of *C. dactylon*'s ethanolic extract was referred orally in the dosage of 300 mg/kg and 600 mg/kg, 30 min before feeding them with indomethacin. Both the dosage, 300 mg/kg and 600 mg/kg, showed a shielding effect on the ulcers, induced by the indomethacin by 54.74%.^[28]

C. dactylon's gastro-protective activity was examined against gastric mucosa damage, induced by indomethacin and alcohol. They were grouped as indomethacin-induced rat section and alcohol-induced rat section. The reference group, standard group and test group of both the induced sections were administered with ulcerogens, 25 mg/kg of ranitidine and 300 mg/kg of juice triturate of *C. dactylon* respectively, before exposing them to ulcerogens. The rats were then dissected after 4 hr of their ulcerogenic exposure. In the dissection procedure, numerations of how many ulcers were found with their sizes and indexes were penned down. The section of rats induced with alcohol and their anti-ulcer property was observed most significantly in the test group, given the juice triturate of *C. dactylon*, contrary to the reference and standard group. Though, in the section of rats induced with indomethacin, the standard group pre-treated with ranitidine gave better results.^[28]

A substantial deduction of ulcer index was also observed against ulcers induced by aspirin and ethanol and pylorus ligation of rats, treating them with the extracts of *C. dactylon*. It also further showed a gastro-protective outcome on examining the stomach of the rats histopathologically.^[29]

Diuretic activity

Rats were evaluated for the diuretic activity by *C. dactylon*'s aqueous extracts with the dosage of 100mg/kg/body weight, 250 mg/kg/body

weight, 500 mg/kg/body weight and 750 mg/kg/body weight when given orally.^[30]

The study unfolded that, treated rats urinated four times more than the normal rats and also the amount of potassium ions, sodium ions and chloride ions excreted were augmented.^[31]

The diuretic potential possessed by *C. dactylon*, when examined, showed intense results, stating that the rats given the extracts orally, increased the output of urination and electrolytes excreted in comparison to the rats given standard therapeutic drugs.^[30]

Pharmacological activity on the central nervous system (CNS)

Altering of catecholamine levels and the amino acids of the brain in mice were investigated as the result of anti-convulsive nature of the ethanolic extract of aerial parts of *C. dactylon*. It showed the defensive property in contrast to high involuntary muscle contractions or convulsions prompted by some chemo agents in mice.^[32]

The examination of CNS related activities in mice was attested by the dehydrated aerial extracts of *C. dactylon*. The ethanolic aerial extracts were calculated to examine its related CNS depressants. It also came out to be the root cause of visible disintegration in mice's normal behavioural profile.^[33]

Dermatological activity

The potential *C. dactylon* to heal dermatological wounds categorized in the wound by excision and wound by incision was studied in albino rats. They were treated with the *C. dactylon* gel made by its alcoholic and aqueous extract. It resulted in wound healing in the speedy rate in both wound by excision and incision.^[34]

The potential of healing of both excision and incision wound was also evaluated in mice, by treating them with the flavonoid concentrate of *C. dactylon*. The flavonoid concentrate was smeared externally over the wound daily for a week. The protein and collagen escalation in the body with the reduction of the fat peroxides in granulation flesh proved the flavonoid potential helped enhance the process of healing.^[35]

Antioxidant activity

The antioxidant of *C. dactylon* evaluated *in vitro* by several assays like nitric oxide scavenging assay, DPPH radical scavenging activity, superoxide anion radical scavenging assay, ferrous chelating ability, hydrogen peroxide scavenging activity, ABTS assay and hydroxyl radical scavenging assay, by taking a hydro-alcoholic extract of its aerial part. It was observed that the free radicals in a manner of concentrated dependence were scavenged in all the methods as mentioned above performed. Extreme inhibition in superoxide anion radical method was noted to be 93.33% and the antioxidant ability corresponding to the equal amount of ascorbic acid was noted to be 172.39 mg per gram of the aerial extract.^[36]

Anti-nephrolithiasis activity

Aqueous-ethanolic concentrate of *C. dactylon* showed that it could shrink the stones of calcium oxalate present in the rodent kidney by 40% to 55% individually. It helped in kidney stone expulsion beneficially and also employed in humans. It was evaluated that the impact of the excerpts of this plant has a protective and therapeutic consequence in tentatively initiated nephrolithiasis.^[37]

Rats empirically induced with nephrolithiasis were studied for the anti-nephrolithiasis effect of *C. dactylon*'s hydro-alcoholic extract on them. Regular inspection of renal histology, crystalluria, biochemical present in urine and other mutable compounds, was thoroughly carried out.

Treated rats showed reduced calcium oxalate deposition in papillary and medullary part of the kidneys.^[38]

Analgesic activity

50% each of 300 mg/kg and 600 mg/kg amount of *C. dactylon's* ethanolic extract was made and taken to evaluate the analgesic impact on albino rats against pain, inflammation, oedema (induced with carrageenan), enzymes' activity and the formation of lipid peroxide and granuloma while practising inflammation experimentally. The extract was then administered orally for a week to albino rats. Substantially, it worked significantly in repressing oedema in the paw. It also helped reducing peroxide output, the elevated formation of granuloma and the elevated activity of enzymes during and causing inflammation. To study the analgesic effect of the extract, albino mice were induced muscle contortions with acetic acid. It was later observed that the extract profoundly helped in elevating the threshold of the pain in albino mice.^[39]

Anti-inflammatory

To validate the anti-inflammatory effects on rats, compounds like histamine, carrageenan and serotonin dextran were used to induce oedema in the paw. Oedema is a bulging or swelling of a body part due to entrapment of fluids in the body.^[40] Fractions of 200 mg/kg, 400 mg/kg and 600 mg/kg per bodyweight of the rats, *C. dactylon's* aqueous extract, were taken to treat oedema. All the requisite trials showed substantial activity *C. dactylon* towards anti-inflammation.^[41]

In another study, 125 mg/kg, 250 mg/kg and 500 mg/kg *C. dactylon's* chloroform-methanolic extract taken to treat carrageenan-induced acute and chronic oedema in the rat paw, also to analyse its natural anti-inflammatory effect with comparison to standard indomethacin anti-inflammatory drug.^[42]

Anti-pyretic activity

The anti-pyretic effect was examined using a different dosage of *C. dactylon's* aqueous extract, against contortions or pain caused by acetic acid and hot plate and hyperthermia caused by the yeast, in mice. It was observed that the extract showed both the activities in a substantial way. Also, the aqueous extract bared antipyretic effect in reducing the temperature in the rectum of mice, when treated with the dosage of 600 mg/kg of the extract.^[43]

Anti-diarrhoeal activity

Hexane, ethyl acetate and dichloromethane with the methanol concoction of *C. dactylon* plant in the examination were verified in albino rats aimed at anti-diarrhoeal activity castor oil tempted diarrhoea. Methanolic extricate displayed an impressive decrease in the hindrance of castor oil tempted diarrhoea and indicated a critical lessening in gastrointestinal motility. These outcomes demonstrate that this plant has great antidiarrhoeal property.^[44]

Antiviral activity

In vivo testing, black tiger shrimps were administered 1% to 2% extracts of *C. dactylon* orally in large quantity which displayed strong antiviral action in contrast to white spot syndrome virus and they have likewise been accounted for to have a high antiviral effect against white spot syndrome virus with zero mortality.^[45]

Future Scope

C. dactylon is a nutraceutically rich entity which has the potential to excel in the field of medicine. Its medicinal properties can flourish with the advent of Nano-encapsulation technology, where Nano-sized particles of whether gas, liquid or solid are entrapped within a subordinate matter

to form a packed nanocapsule. As the technology of Nano-encapsulation is merited for its advantages like target, triggered and sustained release, the phytoconstituents of *C. dactylon*, which are biologically active, can be nano-encapsulated for the better healing process of ailments.

On another view, it can be juiced and mixed with other medicinal concoctions and can be consumed as an herbal drink.

CONCLUSION

This review discusses primarily the nutraceutical and pharmacological potential possessed by *Cynodon dactylon*. Its various nutraceutical and pharmacological properties excelled by phytoconstituents' presence substantially helps to cure infections and diseases. This has greatly attracted scientists and researchers to revolve their experiments around investigating and evaluating the resulting output of its curative action on various ailments. On animal experimentation, it has shown maximum positive results as an herbal curative. Its eye-widening healing properties to treat ailments like nephrolithiasis, inflammation, diabetes, fungal/microbial infections, diarrhoea etc. Inspire young scientists and researchers to further explore its hidden properties and to inculcate them in wider pharmacological use in the fields of science and medicine.

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CONFLICT OF INTEREST

There is no conflict of interest.

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ABBREVIATIONS

C. dactylon: *Cynodon dactylon*; **CNS:** Central Nervous System; **DPPH:** 2,2-diphenyl-1-picrylhydrazyl; **ABTS:** 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonate).

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GRAPHICAL ABSTRACT



SUMMARY

Cynodon dactylon is a perennial grass weed, which has its roots in folklore medicines. It has various pharmacological and nutraceutical properties due to the presence of phytochemicals like Ethyl acetate, Levoglucosone, Hydroquinone, Furfural, Apigenin etc. Having several "anti" properties, these phytochemicals are effective against several ailments like edema, inflammation, nephrolithiasis, psoriasis, bacterial infection etc. This review on *C. dactylon*, mentioning about its diverse pharmacological and nutraceutical properties would be valuable to the researchers and scientists to explore more about its diversity in medicine.

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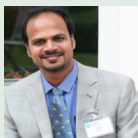
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