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A REVIEW ON DOOB GRASSS (CYNDON DACTYLON): A HIDDEN POTENTIAL PLANT

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ABSTRACT

Plants are one of the most important source of medicine.Medicinal plants are rich in several potential drugs and it carries healthier and harmless alternate to synthetic system of drugs. Plant Cynodon dactylon (L.) (doob/ bermuda grass) family (Graminae/Poaceae) is one of them. It is a perennial grass circulated all over the world, and particularly it is native to the high temperate and tropical regions. The present reviews represent the different pharmacological activities and medicinal properties of *Cynodon dactylon* (L.)

KEYWORDS: *Cynodon dactylon*, Durva, Bermuda grass Medicinal plant, Pharmacological activity Phytochemical constitutents.

INTRODUCTION

The Durva word is derived from the two words i.e. duhu and avam. Durva is use by Hindus to bring the distant pure spiritual particles (Pavitraks) of God closer to the follower. The grass has three blades which represents the three values of Shiva, Shakti and Ganesha. Durva is said to have the highest ability to attract the Ganesha principle by hindus, Apart from medicinal uses of this grass, it has importance in Hindu Rituals.

The plant of C. dactylon has a variety of biological activities like antiviral, antibacterial, antimicrobial and specially wound healing properties. Furthermore, it has been broadly used in ancient medicines to treat various problems such as hypertension, epilepsy, cough, diarrhoea, headache, cramps, dropsy, dysentery, hemorrhage, hysteria, measles, snakebite, sores, stones urogenital disorders, tumors, and warts (Outer growth on the skin).[1-3] The herb contains crude proteins, carbohydrates, and mineral constituents, oxides of magnesium, phosphorous, calcium, sodium and potassium. The herb has β-sitosterol and β-carotoene,

triterpinoids, vitamin C, cartone, palmitic acid, alkaloids, ergonovine and ergonovinine. The aim of this review is to produce an interest for further investigations of the phytochemical and pharmacological properties of this.

Diagram

Scientific classification

Kingdom- Plantae

Subkingdom –Tracheobionta

Super division- Spermatophyta

Division- Magnoliophyta

Class- Liliopsida

Subclass- Commelinidae

Order- Cyperales

Family- Poaceae

Genus- Cynodon

Species- *Cynodon dactylon(L.)*

Vernacular names[4,5]

Hindi- Doob, Dub, Dubra, Khabbal, Kaligas, Neelee Doob.

English- Creeping panic grass, Couch grass, Bahama grass, Bermuda grass, Dun grass, Devil's grass, Doab grass, Doorwa

Sanskrit- Sataparva, Satavalli, Niladurva.

Bengali- Durva, Dub, Dubla, Durba, Doorva, Neel Doorva.

Gujrati- Khadadhro, Lilidhro, Dhro, Dhrokad, Gharo.

Marathi - Doorva, Harali, Dhurva, Karala.

Kannad- Garike hullu, Kudigarike, Kudigarikai

Punjabi- Dubada, Daurva, Dun, Dubra, Khabbal, Tilla, Talla, Dhub.

Tamil- Aruvam pillu, Hariali, Muyalphul, Arugam Pullu

Telgu- Garika, Pacchgaddi, Ghericha, Garicagaddi, Gerike, Harvali.

Urdu- Doob ghas, Doob

Side effects of durva (Doob) grass

Dhruva grass dosent really have any side effects, but overdose of it may sometimes lead to problems like; paraesthesia oral, rash, skin burning sensation.

Cultivation of durva (Doob)

Durva grass originated in the Middle East. Although it is not native to Bermuda, it is an abundant invasive species there. It is presumed to have arrived in North America from Bermuda, resulting in its common name. [Citation needed] In Bermuda it has been known as crab grass.

Durva grass is widely cultivated in warm climates all over the world between about 30° S and 30° N latitude, and that get between 625 and 1,750 mm of rainfall a year (or less, if irrigation is available). Growth begins at temperatures above 15 °C (59 °F) with optimum growth between 24 and 37 °C (75 and 99 °F); in winter, the grass becomes dormant and turns brown. Growth is promoted by full sun and retarded by full shade, e.g., close to tree trunks.

Pharmacological profile

Antidiabetic activity

Singh SK.et al. worked and reported antidiabetic potential of *Cynodon dactylon* extract in streptozotocin diabetic rats. A range of doses, including 250, 500 and 1000 mg/kg (bodyweight) of aqueous extract of *C. dactylon* were evaluated and the dose of 500 mg/kg was repeated by oral administration of drug and identified as the most effective dose. Furthermore, Avvarai et al found that the ethanolic extract of grass root stalks has a good anti-diabetic activity against the animal used. Diabetic rats were treated by Jerald et al with aqueous and non-polysaccharide fraction of *C. dactylon* exhibited significant anti hyperglycaemic activity and decreased the glucose, urea, serum cholesterol, serum

triglyceride, high density lipoprotein (HDL), low density lipoprotein (LDL) and urea levels.[6-8]

Antiulcer activity

Antiulcer properties of alcoholic extract of *Cynodon dactylon was studied by Patil MB et al i*n rats. They evaluated the extract for preliminary identification of Phytoconstituents and screened at 200, 400, and 600 mg/kg body weight given orally for pylorus ligated and Indomethacin induced gastric ulcer models in albino rats. A significant (>0.001) antiulcer activity was showed by alcoholic extracts at 400 mg/kg and 600 mg/kg, comparable to the standard drug ranitidine, which may be due to the presence of flavonoids.[9]

Antiarrhythmic activity

The hydroalcoholic extract of herb produced a marked reduction in the number, duration and incidences of ventricular tachycardia at 25 and 50µg/ml during ischemia. Total number of ischemic ventricular ectopic beats was lowered by 25-100 µg/ml of herb extract. At the reperfusion phase, the extract (25 and 50 µg/ml) decreased incidence of ventricular tachycardia from 100% (control) to 13 and 33%. Duration and number of VT and total VF incidence were also reduced at the same concentration. Perfusion of the extract (25–100 µg/ml) was markedly lowered reversible VF duration from 218± 99 sec to 0sec, 0sec and 10 ± 5 sec respectively.[10-11]

Diuretic activity

Aqueous extracts of C. dactylon rhizomes were evaluated by different scientists for its diuretic activity in rats and the results showed that the extract increased significantly urinary output and electrolytes excretion at the dose of 500 mg/kg body weight. Sadki et al suggested that rhizome extract can be used as a diuretic remedy in traditional medicine. The diuretic activity of herb extract in guinea pigs was studied by Aruna et al. and they reported that administration of crude extract increase the urine output compared to control group.[12-13]

Snakebite therapy

As per the survey done in 1995 in the district Chengapattu (Tamilnadu) it was found that *Cynodon dactylon* is very effective in snakebite therapy and the antisnake venom from the plant extract is very effective in the treatment of snakebite.[14]

Anticonvulsive property

Pal Dilip kumar determined brain biogenic amines in *Cynodon dactylon* and Cyperus rotundus treated mice. The ethanol extract of aerial parts of *Cynodon dactylon* (EECD) and roots & rhizomes of Cyperus rotundus (EECR) showed marked protection against convulsions induced by chemoconvulsive agents in mice. It was confirmed by the study that that both the extracts showed significant anticonvulsive property, which altered the level of catecholamine and brain amino acids in mice.[15- 20]

Analgesic and Anti-pyretic activity

Earlier the herb was used to treat painful and inflammatory conditions. The analgesic and anti-pyretic activity of aqueous extract of *Cynodon dactylon was studied by* Garg VK., Khosa RL. They observed that the aqueous extract at the dose of 600 mg/kg showed a significant decrease in rectal temperature similar to that shown by standard drug, paracetamol. Analgesic activity of the extract was evaluated using hot plate method and writhing test in mice. They used acetic acid as an inducer for writhing syndrome, which causes algesia by liberation of endogenous substances and excite the pain nerve endings. The results showed analgesic activity in both models studied; indicate that this effect could be due to the presence of two components; one acting centrally and the other via peripheral route.[21]

Antioxidant activity

Antioxidants scavenge or suppress the formation of reactive oxygen species (ROS) that can delay the start or slow the rate of lipid oxidation reaction in food systems. Free radical damages the cells and plays a major role in the aging process and in disease progression. Antioxidants defense free-radical damage and are critical for maintaining optimum health.[43] Bhalerao et al observed that ethanolic extracts of aerial part of the herb have potent DPPH free radical scavenging activity and nitric oxide scavenging activity.[44] Fraction of grass with ethyl acetate was studied by Saroja et al *t*o evaluate the enzymatic and non-enzymatic antioxidants in Ehrlich's lymphoma ascite (ELA). The enzymatic, non-enzymatic and vitamin E level were decreased in ELA induced mice due to release of free radicals from the Swiss albino mice liver.[22]

CONCLUSION

The grass (*C. dactylon*) consists of three blades which represents the three principles of primal Shiva, primal Shakti and primal Ganesha. Due to this the grass has great importance in Hindu Rituals. Besides this from all the above study it was clear that *C. dactylon* has broadly

been used in Indian ayurvedic system of medicine since olden days it was used for treatment and cure of many diseases. The present endeavour provides information which develops interest among the researches about natural resourses.

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