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Review Article

An Integrated Study of Durva (*Cynodon dactylon* (L.) Pers.): Ayurveda, Astrology, and Pharmacological Dimensions

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ABSTRACT

Background: Durva (*Cynodon dactylon* (L.) Pers.) is a widely used drug in Ayurveda. Vastly known for its haemostatic nature, it is used mostly in bleeding disorders like nasagata raktapitta (epistaxis), raktapitta (bleeding disorders), garbhasrava (abortion), sadyovrana (fresh wound) etc, it is implemented in treating nonhealing wounds, lesions, and skin disorders. Due to its nature, it acts as one of the best pittashamaka (pitta pacifying) drugs. In Astrology, Durva (*Cynodon dactylon* (L.) Pers.) is said to represent the 'Rahu', also known as one among the shadow planets responsible for eclipses, and several ailments in human life like kustha (chronic dermatological conditions), hridroga (cardiac disorders), tvakroga (general skin pathological conditions), etc. These ailments seem to be coinciding with the therapeutic utility of Durva (*Cynodon dactylon* (L.) Pers.). Major phytoconstituents of Durva (*Cynodon dactylon* (L.) Pers.) belong to flavonoids and phenolic group. Luteolin, Apigenin, Orientin, Ascorbic acid, Syringic acid, Isoorientin, Arundoin, beta-Ionone, Furfuryl alcohol, Furfural, Vanillic acid, Docosanoic acid, Palmitic acid, Phenylacetaldehyde, Isovitexin, Tritriacontane, 4-Hydroxybenzoic acid, Triglocholin, Friedelin, beta-Carotene, Ergometrine, Ergometrinine, etc all the major compounds show antioxidant, anti-inflammatory, antimicrobial action. Contemporary science has also conducted several studies on this grass. Many of them have found significant results wherein it was found to be as antimicrobial, wound healing, useful in metabolic disorders like diabetes & hyperlipidemia, cardiac disorders, etc. Use of Durva (*Cynodon dactylon* (L.) Pers.) in medical textile industry has also been studied. Materials & methods: A comprehensive literature search was conducted across Ayurveda & Astrological literature like Charak Samhita, Sushruta Samhita, Ashtang Hridaya, Mantreshvara Phaladeepika, Varahmihir's Brihat Samhita & databases including PubMed, ScienceDirect and Google Scholar. Results: The results of experimental studies, action of phytochemicals present, therapeutic utility in ayurveda & astrological knowledge, identify the use of Durva

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(*Cynodon dactylon* (L.) Pers.) in wound healing, cognitive & metabolic disorders, skin ailments and antimicrobial activity. Conclusion: The study draws parallels between therapeutic utility of Durva (*Cynodon dactylon* (L.) Pers.) in Ayurveda and Astrological knowledge and provides understanding through modern pharmacological methods.

INTRODUCTION

Durva (*Cynodon dactylon*(L.)Pers.) is a perennial creeping grass that grows throughout the country. It can be found abundantly in wet, marshy areas, fields, or irrigated lands, mostly during the rainy season. It has fibrous cylindrical roots with minute hair-like roots arising from the main root, slender smooth prostrate, leafy, yellowish green colour stem, with lanceolate, acute glaucous green leaves.^[1]

Durva is widely used in Ayurveda as well as in contemporary science. Numerous research studies in medical science have demonstrated the therapeutic utility of durva. Whether it is *churna*, *swarasa*, *taila*, *lepa*, etc., either for internal or external application, durva can be used by formulating in various forms, proving to be as ‘*bahukalpam*’.

It is rich in flavonoids, glycosides & alkaloids that are responsible for its antioxidant, hepatoprotective, antiulcer, diuretic, cardiovascular, antiarrhythmic, antidiabetic, anti-inflammatory, antimicrobial activity & for *daha pitta shaman*, *kaphanashana*, *bastishotha*, *mutrakricchra*, *shotha*, *raktavikar*, *visarpa*, *vatarakta*, *kustha*, *tvakavikara*, *unmada*, *garbhapat*, *netrabhishyanda*, *jwara* etc., it is also indicated for *grahabadha* and *bhutabadha* as per *Raj Nighantu*.^[3]

Durva has the prime place in Hindu rituals. It is one of the favourite things of *Shri Ganesha*, without them *puja* is said to be incomplete. Similarly, durva leaves are used in *grahana kala*;

they are kept in water or food preparations until *grahana kala* is over. Similarly, it is considered representative of ‘*Rahu*’ in the *Navagrahavatika*.^[4] Though these understandings seem to be myths, they hold a scientific rationale behind them.

METHODOLOGY

This study was designed as an integrated interdisciplinary review combining Ayurveda literature; *Bhavprakash Nighantu*, *Charak Samhita*, *Sushruta Samhita*, *Ashtanga hridaya*. Astrological texts *Mantreshwara’s Phaladeepika*, *Varahamihira’s Brihat Samhita*, and modern pharmacological research on *Cynodon dactylon* (L)Pers.. the methodology adopted a literary review of classical texts, database- based pharmacological literature search, and correlational analysis between traditional knowledge systems and contemporary scientific findings. The aim was to catalogue existing knowledge and identify meaningful convergences and divergences between these three distinct knowledge systems, thereby generating an integrated understanding of *Durva*’s therapeutic significance.

Astrological Significance Of Durva

Surya, *Chandra*, *Budha*, *Guru*, *Bruhaspati*, *Mangala*, *Shukra*, *Rahu*, and *Ketu* are the *navagrahas* described in classics. In *Navagrahavatika*, one plant is described as a representative plant for each planet. These plants are planted in a particular direction to get the beneficial effects from these planets. Astrologers often advise individuals to spend time in the close vicinity of the plant corresponding to their planet.^[4] Though *Rahu* and *Ketu* are not the actual physical planets, they are considered as shadow planets that are responsible for solar and lunar eclipses. They represent the north node & south



node of the moon.^[5] In the *Navagrahavatika*, *Durva* is the representative of *Rahu*^[4]

Durva is governed by the *Karka rashi*. *Roopa* of Venus is described as that of green leaves of *Durva*.^[6]

Rahu is said to be responsible for causing heart palpitations, skin diseases, mental derangement, poisoning, pain in legs, trouble from serpents & *pichaccha* and ills to wife & children.^[7]

All *Navagraha* control specific parts of the body. *Rahu*, along with *Ketu*, governs the ‘*Sparsha*’ whose *adhistan* is *tvaka*. They also tend to cause pain to the body and soul. They govern the excretory organs^[8]

Rahu Swaropa is described to have a dark complexion, tall stature, suffering from *pama*, *hikka* & other skin diseases, claims of falsehood often have their own beliefs that defy established principles, is cunning, condemns and criticises people, & lacks intelligence.^[9]

Durva In Ayurveda

Durva is *laghu*, *Snigdha*, *Madhur*, *Kashaya*, *tikta*, *Madhura* *vipaka*, *shita* *virya* and *kaphapittashamak*. Externally it is used for *kshata*, *vrana* due its *Stambhana*, *Ropana*, *Dahaprashamana* and *varnya* gunas. Its *swarasa* or *lepa* is used for the external application. It is also useful in *netrabhishyanda*, *daha*, *Pittaja shiroroga*, *shitapitta*, *infected wound*, *tvakaroga*.^[3]

Internally it is consumed due to its *Medhya* property in treatment of *unmada*, *apasmara*, due to its *Stambhana* nature it is beneficial in *atisara*, *chardi*, *pravahika*, *raktapitta*, *raktapradara*. It is used for treating *upadamsha*, *garbhastrava*, *garbhapata*, and *yonivikara*, as it helps in stopping the bleeding, gives strength to the uterus and

nurtures it. Acts as antagonist in *vishaprayoga* therefore useful in *vishachikitsa*.^[10]

Properties	Description
<i>Rasa</i>	<i>Madhura, Kashaya, Tikta</i>
<i>Guna</i>	<i>Laghu, Ruksha</i>
<i>Virya</i>	<i>Shita</i>
<i>Vipaka</i>	<i>Madhura</i>
<i>Doshaghnata</i>	<i>Kaphapittashamaka</i>
<i>Karma</i>	<i>Stambhana, Ropana, Dahaprashamana, Varnya, Medhya</i>
<i>Rogaghnata</i>	<i>Kshata, Vrana, Atisara, Chardi, Pravahika, Raktapitta, Raktapradara, Upadamsha, Garbhastrava, Garbhapta, Yonivikara, Unmada, Apasmara</i>

Phytoconstituents & Their Activity

Whole plant of *durva* is reported to have the presence of Syringic acid, Isoorientin, Arundoin, Luteolin, Apigenin, Orientin, Ascorbic acid, beta-Ionone, Furfuryl alcohol, Furfural, Vanillic acid, Docosanoic acid, Palmitic acid, Phenylacetaldehyde, Isovitexin, Tritriacontane, 4-Hydroxybenzoic acid, Triglochinin, Friedelin, beta-Carotene, Ergometrine, Ergometrinine, Ferulic acid, 4-Hydroxycinnamic acid, Vitexin, beta-Sitosterol, 6,10,14-Trimethylpentadecan-2-one, Stigmasterol acetate, Phytol, beta-Sitosterol-d-glucoside, Tricin, 2-(4-Hydroxyphenyl)propanoic acid^[11]

Luteolin, apigenin, and tricin are potent anti-inflammatory agents, inhibit cancer cell proliferation & reduce oxidative stress. Orientin, isoorientin, vitexin, and isovitexin are known for cardioprotective, neuroprotective & anti-analgesic properties. Syringic, vanillic, ferulic, & 4 Hydroxybenzoic Acids are the phenolic acids that act as strong antioxidants, antimicrobial agents, & help in managing blood glucose levels. β - sitosterol & Stigmasterol acetate are well known for lowering ‘bad’ LDL cholesterol & providing anti- inflammatory support for prostate



health. Friedelin is a triterpenoid often cited for its antipyretic and gastroprotective properties. Phytol is a precursor to vitamins E & K and exhibits significant antimicrobial & sedative effects. B-carotene is a provitamin A carotenoid crucial for vision, immune function, & skin integrity. palmitic & docosanic Acids are the saturated fatty acids that provide emollient properties & serve as metabolic energy sources. 6,10,14- trimethylpentadecan-2-one is known for its antimicrobial & pheromonal activities.

Ferulic acid, luteolin, and apigenin provide a triple action approach to blood sugar management. They inhibit alpha- glucosidase and alpha-amylase, slowing down the absorption of carbohydrates after a meal. Ferulic acid improves glucose uptake in skeletal muscle. These antioxidants protect beta cells from oxidative damage, preserving the body's natural insulin production.

Beta sitosterol & stigmasterol are structurally similar to cholesterol. In the human gut, they compete for absorption, effectively lowering LDL. Orientin & vitexin are potent cardioprotectants.

They help relax blood vessels, which can lead to a reduction in blood pressure and improve circulation. Flavonoids and certain alkanes like tritriacontane increase urine volume, helping to flush out toxins. Syringic and vanillic acids help reduce the concentration of calcium oxalate in urine.

Apigenin is known to bind to benzodiazepine receptors in the brain, providing a mild sedative and anti-anxiety effect. Isoorientin and vitexin cross the blood-brain barrier to reduce neuroinflammation, leading to slowing down the progression of neurodegenerative diseases like Alzheimer's.

Palmitic acid and ascorbic acid accelerate collagen synthesis, leading to faster tissue repair and wound closure.^[12]

An LC-MS study was conducted wherein Harmine, a powerful alkaloid, was discovered for the first time which is known for neuroprotection and treatment of neuropsychiatric disorders.^[25]

Table 2:Phytoconstituents & their Pharmacological Actions

Sr.No.	Phytoconstituent	chemical class	Pharmacological Activity	References
1	Luteolin	Flavonoid	Anti-inflammatory, anticancer, antioxidant	[11,12]
2	Apigenin	Flavonoid	Anti-inflammatory, anxiolytic, anticancer, antidiabetic	[11,12]
3	Tricin	Flavonoid	Anti-inflammatory, anticancer, antioxidant	[11,12]
4	Orientin	Flavone C-glycoside	cardioprotective, neuroprotective, analgesic, antidiabetic	[11,12]
5	Isoorientin	Flavone C-glycoside	cardioprotective, neuroprotective, anti-inflammatory	[11,12]
6	Vitexin	Flavone C glycoside	cardioprotective, neuroprotective, antidiabetic, antihypertensive	[11,12]
7	Isovitexin	Flavone C-glycoside	Cardioprotective, antioxidant, anti-inflammatory	[11,12]
8	Syringic Acid	Phenolic acid	antioxidant, antimicrobial, antidiabetic, diuretic	[11,12]
9	Vanillic acid	Phenolic acid	Antioxidant, antimicrobial, antidiabetic	[11,12]



10	Ferulic Acid	Phenolic acid	Antioxidant, antidiabetic, wound healing, photoprotective	[11,12]
11	4-Hydroxybenzoic Acid	Phenolic acid	Antioxidant, antimicrobial, anti-inflammatory	[11,12]
12	4-Hydroxycinnamic Acid	Phenolic acid	Antioxidant, antimicrobial, antidiabetic	[11,12]
13	2-(4-Hydroxyphenyl) propanoic acid	Phenolic acid	Antioxidant, anti-inflammatory	[11,12]
14	β -Sitosterol	Phytosterol	Anti-inflammatory, Hypolipidemic, antiproliferative	[11,12]
15	β -Sitosterol-d-glucoside	Phytosterol glycoside	Hypolipidemic, immunomodulatory, antidiabetic	[11,12]
16	Stigmasterol acetate	Phytosterol	Hypolipidemic, anti-inflammatory	[11,12]
17	Friedelin	Triterpenoid	Antipyretic, gastroprotective, anti-inflammatory	[11,12]
18	Arundoin	Triterpenoid	Anti-inflammatory, antioxidant	[11]
19	Phytol	Diterpene alcohol	Antimicrobial, sedative, antioxidant	[11,12]
20	β -carotene	Carotenoid	Antioxidant, immunomodulatory, skin-protective	[11,12]
21	Ascorbic acid	Vitamin C	Antioxidant, wound healing, collagen synthesis, skin brightening	[11,12]
22	Palmitic acid	Saturated Fatty acid	Antimicrobial, emollient, collagen-stimulating	[11,12]
23	Docosanoic acid	Saturated Fatty acid	emollient, metabolic energy source	[11,12]
24	Tritriacontane	Long-chain alkane	Diuretic, antimicrobial	[11,12]
25	Triglochinin	Cyanogenic glycoside	Antimicrobial, cytotoxic	[11]
26	Ergometrine	Alkaloid	Uterotonic, haemostatic	[11,19]
27	Ergometrinine	Alkaloid	Uterotonic, haemostatic	[11,19]
28	Furfural	Furan aldehyde	Antimicrobial, Antifungal	[11]
29	Furfural alcohol	Furan alcohol	Antimicrobial, antioxidant	[11]
30	Phenylacetaldehyde	Aromatic aldehyde	Antimicrobial	[11]
31	beta- ionone	Terpenoid	Antioxidant, Anticancer, Antimicrobial	[11]
32	6,10,14-Trimethylpentadecan-2-one	Isoprenoid ketone	Antimicrobial	[11,12]

THERAPEUTIC UTILITY

Analgesic and antipyretic activity^[13]

Study establishes the anti-pyretic and analgesic activity of aqueous extract of *Cynodon dactylon* in healthy albino Wistar rats of both sexes. It was found that the aqueous extract at the dose of

600mg/kg showed a significant decrease in rectal temperature

Antidiabetic & hypolipidemic activity^[14]

This study identifies the aqueous extract of *Cynodon dactylon* as a potent treatment for diabetes. At an optimal dose of 500mg/kg, the



extract performed similarly to the standard drug tolbutamide, reducing blood glucose by 31% in normal rats and 59% in severely diabetic rats after two weeks. Beyond managing sugar levels, it significantly improved lipid profiles by lowering LDL(77%) & triglycerides (29%) while increasing HDLcholesterol(18%), suggesting strong potential for both glycemic control & cardiovascular protection.

Cardioprotective activity^[15]

The study investigated cardioprotective effects of *Cynodon dactylon* rhizome extract on arrhythmias in isolated rat hearts. Researchers found that lower concentrations (25- 50µg/ml) significantly reduced the frequency and durations of ventricular tachycardia (VT) & ventricular ectopic beats (VEBs) during both ischemia & reperfusion. Notably, the extract also demonstrated a concentration- dependent positive inotropic effect, suggesting that it protects the heart by increasing myocardial contractility and improving haemodynamic stability.

Wound healing and antioxidant activity^[16]

Researchers tested 15% aqueous extract ointment on both Wistar rats & human clinical cases of chronic wounds, comparing against a placebo & the standard antibiotic framycetin. Results showed significant improvements ($p < 0.05$) in wound contraction, tensile strength, & hydroxyproline levels. Plants' high content of phenolic acids & flavonoids provides anti-oxidative activity necessary to stimulate collagenesis, necessary for treatment of chronic wounds.

Antimicrobial activity^[17]

Study demonstrates significant antimicrobial potential of propanol extract of *Cynodon dactylon* against multidrug-resistant bacteria. Using the

well diffusion assay, it was found that the extract effectively inhibited Gram-positive pathogens, with maximum activity against *Staphylococcus aureus* and *Bacillus cereus*.

Methanolic extract possesses potent antioxidant & broad spectrum antimicrobial properties. Palmitic acid, hydroquinone, & sitosterol as primary constituents contribute to a free radical scavenging activity that rivals BHT. The extract showed significant dose-dependent inhibition of both gram-positive and gram-negative bacteria, *Bacillus cereus* & *Escherichia coli* & exhibited antifungal activity against *Aspergillus niger* at higher concentrations. ^[18]

Ethanol and aqueous extract were tested against 100 clinical strains. Ethanol extract exhibited persistent inhibitory activity against *Staphylococcus aureus*, *Streptococcus pyogenes*, *Salmonella typhimurium*, *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Escherichia coli*, & *proteus vulgaris*. Both extracts suppressed the growth of the fungus *Candida albicans*. Phytochemical screening revealed the presence of palmitic acid, triterpenoids, ergnovine, ergnovinine, and beta-carotene^[19]

Diuretic activity^[20]

Oral administration of Aqueous extract of *Cynodon dactylon* root stalk at a dose of 100 mg, 250mg, 500mg, 750 mg/kg body weight showed diuretic activity in male Wistar albino rats.

Activity on kidney stones^[21]

The study evaluated the protective effects of *Cynodon dactylon* decoction against kidney stone formation in rats. Results demonstrated that a minimum dose of 200mg/kg significantly reduced the incidence of calcium oxalate stones and improved the body's antioxidant status by



increasing serum thiol content and total antioxidant power. While lower doses and the stone-inducing agent (ethylene glycol) were associated with increased urine volume and weight loss, the 200mg/kg treatment helped preserve kidney health and mitigate oxidative stress.

PCOS Management^[22]

Study concluded that 500mg/kg of *Cynodon dactylon* hydroalcoholic extract effectively reverses letrozole induced PCOS in female Sprague Dawley rats when compared against Metformin 150mg/kg with treatment of 28 days, normalized LH/FSH ratio, decreased testosterone and estrogen, increased progesterone levels, reduced number of cystic follicles, while increasing corpus luteum and secondary follicles, proving that extract can restore ovulation and repair uterine defects. Further molecular docking was conducted to simulate how specific compounds bind to PCOS-related receptors.

Modification of cotton gauze using *Cynodon dactylon* extract^[23]

Study demonstrated that cotton gauze treated with the *Cynodon dactylon* aqueous extract via the exhaust method creates a potent antimicrobial barrier suitable for medical textiles. The treated fabric achieved a remarkable 99.99% reduction in *Staphylococcus aureus* and 22% in *Escherichia coli*, significantly outperforming many

commercial antibacterial treatments, while maintaining a safe, non-irritating profile for skin contact when tested on albino rabbits. FTIR and SEM analysis confirmed that the plant's phytochemicals successfully bonded to the fibres, increasing weave density and durability without sacrificing breathability. Furthermore, EDX analysis identified key trace elements like manganese and magnesium, which contribute to the fabric's long-term antimicrobial stability even after repeated laundering.

Anticancer activity^[24]

The study evaluated the anticancer potential of phytoconstituents from *Cynodon dactylon* using in silico molecular docking against the cancer-related protein target 6JXT lung cancer receptors. Nine compounds, mainly flavonoids such as orientin, vitexin, luteolin, apigenin, ferulic acid, p-Coumaric acid, Hydroquinone, Levoepicatechin, were analysed using tools like PyRx and AutoDock Vina to determine their binding affinity. The results showed that orientin & vitexin (9.2kcal/mol) exhibited the strongest binding interactions, followed by β -sitosterol & luteolin, indicating higher stability with the target protein, while phenolic acids showed weaker activity. Overall, the study suggests that flavonoids from *Cynodon dactylon* possess significant potential as anticancer agents.

Table 3: Summary Of Pharmacological Studies Conducted On *Durva* (*Cynodon Dactylon*(L) Pers.)

Study	Extract	Dose	Model	Key Finding	References
Analgesic/ Antipyretic	Aqueous	600mg/Kg	Wistar Rats	Significant Decrease In Rectal Temperature	[13]
Antidiabetic	Aqueous	500mg/Kg	Streptozotocin Rats	59% Blood Glucose Reduction	[14]
Cardioprotective	Rhizome Extract	25-50 μ	Isolated Rat Heart	Reduced VT Frequency	[15]
Wound Healing	15% Aqueous Ointment	Topical	Wistar Rats + Humans	Improved Tensile Strength & Hydroxyproline Levels	[16]



Diuretic	Aqueous Root Stalk	100-750 mg/Kg	Wistar Rats	Significant Diuretic Activity	[20]
Kidney Stones	Decoction	200 mg/Kg	Wistar Rats	Reduced Calcium Oxalate Stones	[21]
Antimicrobial	Propanol/ Methanol/ Ethanol	Varied	In Vitro	Inhibition Of S. Aureus, E. Coli, C. Albicans	[17,18,19]
PCOS Management	Hydroalcoholic Extract	500mg/Kg	Female Sprague Dawley Rats	Restoration Of Ovulation, Repaire Uterine Defects	[22]
Cotton Gauze Modification	Aqueous Extract	1:20 Material to Liquor Ratio	Albino Rabbits	99.99% Reduction Of <i>Staphylococcus Aureus</i> & 22% <i>E.Coli</i>	[23]
Anticancer Activity	-	-	Molecular Docking	Orientin, Vitexin. B Sitosterol & Luteolin Exhibited Strongest Binding To 6JXT	[24]

DISCUSSION

The integrated study of *Durva* (*Cynodon dactylon* (L.) Pers.) reveals a remarkable convergence of ayurveda, astrological, and pharmacological knowledge systems that, when examined together, present a coherent and scientifically grounded picture of this perennial grass.

Astrological Correlations and their Scientific Rationale

In the *Navgrahavatika*, *Durva* is designated as the representative plant of *Rahu*, the shadow planet formed by the north node of the moon, responsible along with Ketu for causing solar and lunar eclipses.^[5] while *Rahu* and *Ketu* are not physical planets, their influence in classical *Jyotisha* is considered profound and far reaching, particularly in relation to human health and wellbeing.^[5] *Rahu* is specifically attributed with causing heart palpitations, skin diseases, mental derangement, poisoning, pain in legs, trouble from serpents, and distress to family members.^[7] Along with *Ketu*. *Rahu* governs *Sparsha* whose *adhithana* is *twaka* (skin), and is known to cause pain to both body and

soul while governing the excretory organs.^[8] The *Rahu Swaroopa* is described as one with dark complexion, tall stature, suffering from *pama*(scabies/itch) and *hikka*(hiccough), and afflicted with skin diseases.^[9]

When this astrological characterisation is placed alongside the pharmacological profile of *Durva*, the correspondence emerges as systemic and scientifically meaningful rather than coincidental. Phytochemical studies confirm that *Durva* is rich in flavonoids such as luteolin, apigenin, orientin, vitexin, and isoorientin; compounds with well documented anti inflammatory, neuroprotective, cardioprotective, and antimicrobial properties that directly address each of the ailments attributed to malefic *Rahu*.^[11] Skin diseases governed by *Rahu* find their remedy in *Durva*'s antimicrobial, anti-inflammatory, and antioxidant constituents.^[12] Mental derangement finds its pharmacological counterpart in apigenin's ability to bind to benzodiazepine receptors in the brain, producing mild sedative and anxiolytic effects, while isoorientin and vitexin cross the blood brain barrier to reduce neuroinflammation and slow the progression of neurodegenerative diseases.^[12] This



neuroprotective dimension of *Durva* has been further strengthened by recent LC-MS study which identified harmine; a powerful β carboline alkaloid known for neuroprotection and treatment of neuropsychiatric disorders, which further provide basis for *Durva*'s indication as *Medhya* and *unmadahara*.^[25] Heart palpitations attributed to *Rahu* correspond directly to the cardioprotective activity of orientin and vitexin, which relax blood vessels, reduce blood pressure, and improve haemodynamic stability, as demonstrated in isolated rat heart models.^[15] The excretory organ disturbances governed by *Rahu* align with *Durva*'s established diuretic activity and its protective effects against calcium oxalate kidney stone formation.^[20,21] Pain attributed to *Rahu* is addressed by the analgesic and antipyretic activity of aqueous extract at 600 mg/kg.^[13]

The association of *Durva* with Venus through its *roopa*, described as that of green leaves of *Durva*, and its governance by *Karka rashi*, may further reflect an ancient intuitive classification of plants according to their humoral and systemic effects, particularly their cooling, nurturing, and reproductive system supporting properties, which align with both Venus's domain in classical astrology and *Durva*'s uterotonic and *garbhasthapana* properties.^[6] The traditional astrological advice to spend time in proximity to one's *Navagraha* representative plant may thus carry a subtle but real therapeutic dimension, wherein sustained exposure to and use of *Durva* would naturally provide its phytochemical benefits to those constitutionally predisposed to *Rahu*-governed ailments.^[4]

Convergence of Ayurvedic & Modern Pharmacological Understanding

The ayurvedic characterisation of *Durva* as *kaphapittashamak*, *Medhya*, *stambhana*, and

Raktashodhaka properties matches to its modern pharmacological profile.^[3]

Durva which is described as *Medhya* and indicated in *Unmada*(psychosis) and *apasmara*(epilepsy), is finds compelling support in apigenin's GABAergic activity through benzodiazepine receptor binding, and neuroprotective flavonoids orientin and isoorientin that reduce neuroinflammation and protect against neurodegenerative progression.^[32,12] This theory is further proven to be true due to recent discovery of harmine in LC-MS analysis of *Cynodon dactylon* (l)Pers which is a β -carboline alkaloid with established monoamine oxidase inhibitory activity, is a neuroprotective and has therapeutic relevance in neuropsychiatric disorders like depression, Parkinson's disease & Alzheimer's disease.^[25] This discovery of harmine further validates indication of *durva* in diseases related to *manovha srotas*.^[25]

The antidiabetic activity was found at 500mg/kg which showed reduction in blood glucose by 59% in diabetic rats that matched the standard drug tolbutamide while simultaneously improving lipid profiles by lowering LDL by 77% & triglycerides by 29% while raising HDL by 18%, which backs its use metabolic disorders and its role in *Pittaja* disorders, since oxidative metabolic dysregulations has close parallels with *pitta* aggravation in ayurvedic pathophysiology.^[3,14] Ferulic acid, leutolin, and apigenin offers triple action blood sugar management through alpha-glucosidase and alpha amylase inhibition, improved glucose uptake in skeletal muscle and beta cell protection from oxidative damage representing the multi target pharmacological mechanism.^[12]

The cardiovascular protection offered by *Durva* further provides evidence for its indication in *hridroga*. Study on isolated rat hearts demonstrated



that concentrations of 25-50µg/ml of *Cynodon dactylon* rhizome extract significantly reduced the frequency and duration of ventricular tachycardia and ventricular ectopic beats during ischemia & reperfusion with concentration dependent positive inotropic effect that improved myocardial contractility and haemodynamic stability.^[15] The *kashaya rasa* and *stambhana* property might be correlated to this antiarrhythmic activity^[3,15]

Use of *durva* in *raktapitta*, *raktapradara* and *garbhastrava* involving abnormal bleeding and uterine instability is supported by the hemostatic properties found in pharmacological studies, as well as by the presence of ergometrine and ergometrinine which are potent uterotonic alkaloids.^[2,19] These alkaloids validate use of *durva* in *garbhastrava* by strengthening uterus and arresting bleeding.^[9,19]

A significant recent study further extended this validation into the context of Polycystic Ovary Syndrome (PCOS). The study concluded that 500mg/kg of *Cynodon dactylon* hydroalcoholic extract effectively reversed letrozole introduced PCOS in female Sprague- Dawley rats when compared against metformin 150 mg/kg over 28 days of treatment.^[22] it normalised the LH/FSH ratio, decreased elevated testosterone and estrogen levels, reduced cystic follicles, increased progesterone, corpus luteum & secondary follicles, which is necessary to restore ovulation & repair uterine structural defects.^[22] Further molecular docking was conducted how specific phytoconstituents bind to PCOS-related receptors, identifying the flavonoids responsible for hormone normalisation.^[22] this finding validates the use of *Durva* for *Yonivikaras*, *artavdushti*.^[3]

The anticancer potential of *Durva*'s phytoconstituents has also been demonstrated through in silico molecular docking against the

lung cancer protein target 6JXT. Study found that nine phytochemicals showed strong binding interactions indicating high stability with target protein. This again establishes *rakta pitta janya vyadhihara* property of *durva*.^[3,24]

Wound Healing and Skin Diseases

One of the most compelling validation of ayurvedic wisdom in modern pharmacology is found in the wound healing and dermatological activity of *Durva*. It is known for its *vranaropana*, *Dahaprashamana*, *stambhana* and *varnya karma* making it one of the main choice of drug for *kshata* and *vrana*. Its *swarasa*, *lepa*, *taila* is directly applied over the injuries or wounds.^[3,9]

A clinical and experimental study testing 15% aqueous extract ointment of *Durva* on both Wistar rats and human clinical cases of chronic wounds showed statistically significant improvement in wound contraction, tensile strength and hydroxyproline content which is a key marker of collagen synthesis and tissue remodelling.^[16] Study revealed that not only it heals wounds merely by antimicrobial suppression but also through biological mechanisms. Palmitic acid and ascorbic acid present in plant directly accelerates collagen synthesis, leading to faster tissue repair and wound closure. While ferulic acid creates favourable oxidative environment for cellular proliferation and migration.^[12] Luteolin and apigenin reduce inflammation by at the wound site by inhibiting pro inflammatory cytokines thereby allowing faster proliferative and remodelling phases.^[12] These all phytoconstituents and their actions help in understanding the indications of *Durva*, i.e. *vranaropana*, *dahashaman*, *varnya* etc.^[3,16]

This classical wound care understanding has now found a remarkable contemporary extension in the domain of medical textile technology. Study



discovered that cotton guaze treated with aqueous extract of *Cynodon dactylon* created a potent antimicrobial barrier suitable for medical textiles.^[23] The treated fabric achieved 99.99% reduction in *staphylococcus aureus* & 22% reduction in *e.coli*, while maintaining a safe, non irritating profile for skin contact confirmed by acute dermal irritation testing on albino rats. It maintained its antimicrobial effect even after washing.^[23]

The relevance of *Durva* in skin diseases (*twakvikaras*) is deeply embedded in both its ayurveda and vedic astrology. *Durva* is indicated for *Kushta.visarpa*, *shitapitta*, *vtarakta* and general *twakavikaras*^[3]. Its shita virya addresses the *daha*, *shotha* caused due to *pitta dosha*, a characteristic in *pittaja twakavikaras*. *Kashaya rasa* helps managing of weeping, oozing skin lesions due to its *stambhana karma*.^[3,9] The broad spectrum antimicrobial activity of *durva* is relevant to to infectious skin conditions. Study confirmed that propanol extract effectively inhibits multidrug resistnt gram positive pathogens with maximum activity against *Staphylococcus aureus*.^[17] Methanolic extract showed potent antioxidant and broad spectrum antimicrobial

properties with palmitic acid, hydroquinone, and sitosterol as primary constituents.^[18] Ethanol and aqueous extract were tested against 100 clinical strains and inhibitory activity was discovered against *Staphylococcus aureus*, *Streptococcus pyogenes*, and antifungal activity against *Candida albicans*.^[19]

The anti-inflammatory flavonoids; luteolin, apigenin and triclin in *Durva* reduce inflammatory cell proliferation and oxidative stress which helps in chronic inflammatory skin conditions like psoriasis and eczema.^[11,12] β carotene, ascorbic acid does inhibition of melanin synthesis and stimulates collagen production which helps in curing skin lesions or scars left behind while ferulic acid provides photoprotective effects by absorbing ultraviolet radiation further proving *varnya* property of *Durva*.^[12] the astrological understanding further deepens this understanding, *rahu* is specifically attributed with causing pama and skin diseases and governs *Sparshendriya* whose *adhithan* is *twaka*.^[7,8] The fact that the very planet that is represented by *Durva* is specifically linked to the skin diseases and *tvaka* suggests that there is link between astrology & medical therapeutics.^[4,7]

Ailment Attributed to <i>Rahu</i>	<i>Durva</i>'s corresponding Action	Key Phytoconstituent
Skin Diseases	Antimicrobial, anti-inflammatory	Luteolin, palmitic acid
Mental Derrangement	Anxiolytic, neuroprotective	Apigenin, isoorientin
Heart Palpitations	Cardioprotective, Antiarrhythmic	Orientin, vitexin
Poisoning	Antitoxic, antioxidant	β -carotene, Ascorbic acid
Excretary Disturbances	Diuretic, Kidney Stone prevention	Flavonoids, Syringic acid
Pain	Analgesic, Antipyretic	Ferulic acid, luteolin

Cultural and Ritual Practices

During the *grahana kala* (eclipse time) ancestors used to tell to keep *Durva* leaves in food and water till eclipse time is over, though it appears as myth it may have some scientific background to it.^[4]

solar and lunar eclipses are caused by *Rahu* and *Ketu* in astrological framework.^[5] Given *Durva*'s established broad spectrum antimicrobial activity against various microorganisms,^[17,18,19] Placing *Durva* in stored food and water would provide natural antimicrobial protection. This is further



supported by the cotton guaze study, that demonstrated, the simple aqueous extract of *Durva* which is directly analogous to keeping *Durva* in water produces measurable antimicrobial activity against measure pathogens.^[23] The antimicrobial phenolics and flavonoids leaching into water or food would serve as natural purifying agent against increased microbial contamination in atmosphere during eclipse thereby preventing food contamination.

LIMITATIONS AND FUTURE DIRECTIONS

While the convergence of astrology, ayurveda and modern pharmacological studies is compelling, several gaps remain. Most pharmacological studies have been conducted on animal models and robust human clinical trials validating the therapeutic doses and safety profiles are still needed.^[14,16,20,21] The mechanisms underlying some classically described actions, particularly the *grahabadha*, *bhutabadha* indications mentioned in *Raj Nighantu*, require investigation from a psychoneuroimmunological perspective, as these may encode complex presentations of neurological or psychiatric disorders. The full phytochemical characterisation of different plant parts across seasons and geographies also remains incomplete.^[3]

Future interdisciplinary research combining ayurveda, astrobiology, and pharmacognosy would further elucidate whether the *navagraha* plant system represents a sophisticated ancient classification of medicinal plants based on systemic therapeutic effects, ecological behaviour, and seasonal availability.^[1]

CONCLUSION

The consistent alignment between *Rahu* associated conditions and *Durva*'s pharmacological effects across multiple physiological systems suggests a

deliberate and systematic knowledge structure.^[4,7,8,9,12] Recent scientific advancements including identification of harmine, validation in PCOS models, antimicrobial textile applications, and anticancer potential expand its relevance into modern biomedical contexts^[22,23,24,25] These findings validate classical ayurvedic & astrological insights and highlight the need for deeper scientific engagement with traditional knowledge systems.

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