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Comprehensive Review of *Musa paradisiaca Kadali*: Ethnobotanical, Phytochemical, and Pharmcological Insights into a Versatile Medicinal Plant

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Abstract: ***Background: Kadali is Musa paradisiaca linn belonging to musaceae family. It is cultivated throughout India Planted by suckers in fruit orchards, garden shrubberies near houses Farming of Banana in different regions, especially in the plains, Coastal regions and other various areas in country. The ripe fruit is rich source of carbohydrate and a fair source of mineral and vitamins. Many chemical constituents present in kadali like suger, minerals, vitamins uronic acid etc. Kadali used in different disorders like bleeding disorder, eye disorder, menstrual disorder, dysentery, diabetes, uraemia, gout, hypertension, cardiac disorders and bronchial asthma etc. Study of Ayurvedic classics shows that flowers are used in various contexts. Sushrutahas also described Pushpa varga in Sutra sthana while describing various Aahar varga. kadali is described in Charaka Samhita, Susruta Samhita, Astanga Sangraha and Astanga Hridaya, Nigahntu, Pushpayurveda etc. Objective: Our present study was undertaken to give review on kadali with the help of all classical references. Material & method: Regarding the plant reviewed from various research articles, review article, various nighantu, samhita & API. Result: This review article helpful for all the Ph. d researcher because all the references are used in this review article from API, Nighnatu, Samhita, Text books of Darvya guna & pharmacognosy and some of previous review & research article. Conclusion: The current review focused on new finding on musaparadisiaca flowerlike neutrceutical value of flower, micrometery, microscopical, macroscopical characters. The detailed review of Kadali (Musa paradisiaca) was compiled from ancient as well as recent texts and various researches on pharmcognostical, phytochemistery & pharmacological actions of Kadali so it was concluded that the Kadali (Musa paradisiaca) had many properties and it's very useful in many diseases as it reviewed in detailed in many researches. Kadali used in different disorders like bleeding disorder, eye disorder, menstrual disorder, bronchitis disorder, diabetes, uraemia etc.***

Keywords: *Musa paradisiaca*, *Kadali*, Pharmacognostical, Phytochemistry, Pharmacological

1. Introduction

Banana plants represent some of the largest herbaceous plants existing in the present, withsome reaching up to 9 metres (30 ft) in height. The large herb is composed of a modified underground stem (rhizome), a false trunk, a network of roots, and a large flower spike. The false trunk is an aggregation of the basal portion of leaf sheathes; it is not until the plant is ready to flower that a true stem grows up through the sheath and droops back down towards the ground. [1, 2] At the end of this stem grows a peduncle with many female flowers protected by large purple-red bracts. The extension of the stem (this part called the rachis) continues growth downward where a terminal male flower grows. The leaves originate from apseudostem and unroll to show a leaf blade with two lamina halves. [3] *Musa paradisiacal* reproduces by both sexual (seed) and asexual (suckers) processes, utilizing asexual means when producing sterile (non-seedy) fruits. Further qualities to distinguish *Musa paradisiaca*include spirally arranged leaves, fruits as berries, latex-producing cells present, 5 connate and 1 member of the inner whorl distinct, and petiole with one row of air channels [4]. *Musa paradisiaca*-sapientum stands for bananas which are known for their edible fruits and *Musa paradisiaca-paradisiaca* standing for 'Plantains' and are generally larger, more angular starchy fruits of hybrid triploid cultivars in the banana family intended for cooking [5, 6]. Various parts of *M. paradisiaca* have been used for various medicinal purposes. It has traditionally been used for antidepressant, antibacterial, antihypertensive, antiulcerogenic [7, 8] urolithiasis [9] laxatives, antihelminthics. This indigenous knowledge, passed down from generation to generation in various parts of the world, has significantly contributed to the development of different traditional systems of medicine [10] as well as helped in exploration of different medicinal plants to find the scientific basis of their traditional uses.

2. Taxonomical classification [11]

Kingdom	**Plantae**
Sub Division	Tracheobionta
Division	Mangoliphyta
Class	Liliopsida
Subclass	Zingiberidae
Order	Zingiberales
Family	Musaceae
Genus	Musa
Species	Paradisiaca

Synonyms [12]
M. paradisiaca L. *Musa sapientum* L., var *sapientum (*L) Kuntze, Plantain.

Vernacular names [13]

Sanskrit: Vana laxmi, Kadali,
Rambha (unripe): Mochaka
English: Plantain or Banana
Hindi: Kela
Maharashtrian: kela
Gujarati: Keda
Sindhi: Kewiro
Telugu: Kadalamu, Ariti
Tamil: Kadali
Malayali: Vasha
Konkan: Keli

Flowering and Fruiting time: Throughout the year

Parts Used: Fruit, leaves and stems [14]

Occurrence and Distribution [15 16]
It is a perennial herb growing 10-40 feet in height (look like tree) commonly found in the tropical and subtropical area. It occurs in all tropical areas native to India and Burma. In India, it is mostly found in Tamil Nadu, Andhra Pradesh, Bihar, Madhya Pradesh, West Bengal, Maharashtra, and Gujarat. It is also distributed in New Guinea, America, Australia and tropical Africa. Cultivation is limited to Florida, The Canary Islands, Egypt, Southern Japan, and South Brazil.

Origin of Bananas
The genus Musa paradisiaca was first named by Carl Linnaeus in 1753. [17] The name is a Latinization of the Arabic name for the fruit, mauz. Mauz meaning Musa paradisiaca is discussed in the 11th-century Arabic encyclopedia The Canon of Medicine, which was translated to Latin in medieval times and well known in Europe. Muz is also the Turkish, Persian, and Somali name for the fruit. Some sources assert that *Musa paradisiaca* is named for Antonius *Musa paradisiaca*, physician to the Emperor Augustus. [18, 19] According to Roger Blench, the ultimate origin of *Musa paradisiaca* is in the Trans-New Guinea languages, whence they were borrowed into the Austronesian languages and across Asia, via the Dravidian languages of India, into Persian, Greek and Arabic as Wonderwork [20].

Cultivated Bananas
A number of distinct groups of plants bearing edible fruit have been developed from species of *Musa paradisiaca*. In English, fruits which are sweet and used for dessert are usually called "bananas", whereas starchier varieties used for cooking are called "plantains", but these terms do not have any botanical significance [14]. By far the largest and now the most widely distributed group of cultivated bananas is derived from section *Musa paradisiaca*, particularly *M. acuminata* and *M. balbisiana*, either alone or in various hybrid combinations.

The next but much smaller group is derived from members of section Musa paradisiaca (previously classified as Australi Musa paradisiaca) and is restricted in importance to Polynesia. Of even more restricted importance are small groups of hybrids from Papua New Guinea; a group from section *Musa paradisiaca* to which *Musa paradisiaca* schizocarpa has also contributed, and a group of hybrids between section *Musa paradisiaca* and section Calli *Musa paradisiaca* [15, 16].

Morphology
The Banana plant, *Musa paradisiaca* often erroneously referred to as a "tree", is a large herb, with succulent, very juicy stem, which is a cylinder of leaf-petiole sheaths, reaching a height of 20 to 25 ft (6-7.5 m) and arising from a fleshy rhizome or corm. Leaves are tender, smooth, oblong or elliptic numbering 4 or 5 to 15, arranged spirally and they unfurl, as the plant grows, at the rate of one per week. The inflorescence, a transformed growing point, is a terminal spike shooting out from the heart in the tip of the stem [21, 22]. At first, it is a large, long-oval, tapering, purple-clad bud. As it opens, it is seen that the slim, nectar-rich, tubular, toothed, white flowers are clustered in whorled double rows along the floral stalk, each cluster covered by a thick, waxy, hood like bract, purple outside, deep-red within. Female flowers occupy the lower 5 to 15 rows. Above them may be some rows of hermaphrodite hermaphrodite or neuter flowers. Male flowers are borne in the upper rows. The bracts are soon shed and the fully grown fruits in each cluster become a "hand" of Bananas, and the stalk droops with the weight until the bunch is upside down. The fruit turns from deep-green to yellow or red, or, in some forms, green and white-striped [23]. A stout, stoloniferous, perennial herb, 2-8 m tall. Leaves oblong, 1-3* 0.2-0.3m, suddenly truncate at both ends, acuminate or emarginate; petioles 0.5-1m on long sheath forming pseudostes. Flowers unisexual, in a cymose inflorescence subtended by a large bract and all partial inflorescences arranged spirally on a long, drooping, stout axis. Bracts large, broadly ovate, 20-40*15-30 cm, brownish red, truncate at base; lower bracts subtending female and distalones male flowers. Fruits oblong to fusiform, generally 15-25cm long, fleshy**. [**24]

3. Ayurveda Literary Review

Onomatology5: [25]
The word '*Kadali*' comes from Root *'Kadi Ahvane Rodane cha'*, meaning that which is Inviting, also meaning that which secretes water. Another Root being *'Dal Visharane'*, meaning that which oozes.

GANA/VARGA [26, 27, 28, 29, 30, 31, 32, 33, 34, 35]

REFERENCE	VARG/GANA
Charaka Samhita	Phala Varga
Sushruta Samhita	Lodhradhi Varga
Ashtanga Hridaya	Rodhradi Varga
Dhanvantari Nighantu	Karaveeradi Varga
Kaiyadeva Nighantu	Aushadhi Varga
Raja Nighantu	Amradi Phala Varga
Nighantu Adarsha	Kadalyadi Varga
Madanapala Nighantu	Phaladi Varga
Priya Nighantu	Hareetakyadi Varga
Shodala Nighantu	Karaveeradi Varga
Sousruta Nighantu	Lodhradi Varga

Varieties [36, 37]**:**

Kadali Bheda
***Bhava Prakasha Nighantu*:** Manikya Kadali, Martya Kadali, Amruta Kadali and Campaka Kadali are 4 types of Kadali mentioned.

***Raja Nighantu*:** Considers 3 types, they are Kaasta Kadali, Giri Kadali and Suvarna Kadali.

Synonymns of *Kadali Pushpa (*Flower) [38]
Brhat Puspa (Large inflorescence)
Mrtyu Pushpa (Inflorescence indicating death of Plant)

***Rasapanchaka* (Properties)** [39]

Kadali Pushpa (*Flower*)
According to Kaiyadeva Nighantu
Rasa-Tikta-Kashaya
Veerya-Ushna
Doshaghnata-Kaphanaashaka
Karma-Grahi, Deepana, Balavardhaka, Yonidoshara, Asraghani.

Formulations:
Kadalyadi Ghrita (Kadali Pushpa) [40]

Traditional uses
Many traditional uses of banana have been well documented, for example, the leaf and stem are used to treat diarrhoea; the stem is good for asthenia and wounds, and the leaf for the treatment of inflammation, headache and rheumatism [41]. Previous studies reported that *Musa Paradisiaca* had antimicrobial and healing activities. Nevertheless, only a few studies have reported on the efficacy of this plant against nematodes [42]. Various parts of *Musa. Paradisiaca* have been used for various medicinal purposes. It has traditionally been used for antidepressant, antibacterial, antihypertensive, antiulcerogenic [43] urolithiasis [44] laxatives, antihelmin, analgesic, antifungal, constipation, wound healing, fevers, burns, diarrhoea, inflammation, pains and antivenomic for snake bites [45]. Flowers are used in dysentery and menorrhagia. Stem juice of fruited plant is used for treating diarrhoea, dysentery, cholera, otalgia, haemoptysis and flower is used in dysentery, diabetes and menorrhagia. [46] The root is used as antihelmintic [47], blood disorders and venereal diseases. [48]

Pharmacognosy

Rhizome [49]
a) Macroscopic
Drug available in 0.1-4 cm thick, transversely cut pieces, pinkish-brown to Greyish-brown, occasionally attached with a few roots.

Flower [50]

Macroscopic
Inflorescence spike, drug occurs in cut and crumpledpieces, 2.5 to 4.0cm long sessile, unisexual; calyx and corollapresent; calyx 2.5 to 4 cm long crumpled, tubular spathaceous, dark brown having ridges and furrows; corolla 1.5 to 2.5cm long, connate, crumpled, boat shaped creamish membranous, toothed at apex; stamens 5+1 rudimentary, 0.8 to 1.2 cm long dark brown; filament erect, strongly filiform, anthers linear, bithecous; carpels 3, syncarpous, ovary inferior, trilocular, each with several ovules; axile placentation; style 3.0 to 4.5 cm long light brown, filiform; stigma capitates or sub globose, 3 or 4 lobed, greyish-brown; taste arid odour not characteristic.

b) Microscopic

Calyx-Shows thin-walled, single layered, upper and lower epidermis, followed by thin walled, parenchymatous mesophyll, embedding vascular bundle, having usual elements surrounded by some large, thin walled, specialized cells containing oleo-resin ducts, tannin cells and a few oil globules.

Corolla-Shows thin-walled, striated single layered epidermis on either surface and oval to polygonal in surface view; mesophyll 2 or 3 layered consisting of thin parenchymatous cells; numerous prismatic crystals of calcium oxalate present in mesophyll.

Androecium-Filament shows single layer followed by ground tissues consisting of oval to polygonal, thin walled, parenchymatous cells having crescent shaped vascular bundles and oleo-resin cells; another lobe shows layered wall, 4 to 6 celled tapetum; pollen grains spherical measuring 26 to 47 μ in diameter, smooth, yellowish having clear, thick-walled, pigmented exine, thin colourless intine.

Gynoecium-Ovary shows single layered, cuticularised epidermis followed by ground tissue consisting of oval, polygonal, thin-walled, parenchymatous cells embedding a few thickened pitted cells; stigma consists of 6 chambers having single layered epidermis.

Fruit [51]
Transverse section of unripe fruit of *M. paradisiaca* shows outer single layer epidermis made up of rectangle shaped parenchyma covered with thin cuticle papillae like outer protrution from each cell. Followed by epidermis, thick walled, irregular shaped, compactly arranged parenchymatous cells loaded with oval starch granules are present. Sclerenchymatous cells arranged in groups encircled with thin walled parenchymatous cells, tannin cells and vascular bundles scattered in this region. Presence of 10-14 layers of compactly arranged parenchymatous cells are arranged longitude way. Mesocarp showed loosely arranged, tangentially elongated parenchymatous cells with abundant oval starch grains, raphide bundles with needle shaped crystals and few longitudinally extended parenchymatous cells with tannin cells. Powder study of fruit showed fragment of epidermal cells with papillae, different shape parenchymatous cells, Sclerenchymatous cells, reticulate helical vessels in groups, xylem cells in surface view, tannin cells, and abundant oval starch grains in groups.

Properties and Actions of Different Parts of Kadali

Part	Rasa	Guna	Virya	Vipaka	Karma
Phala (Fruit) [52]	Madhura, Kashaya	Mridu, Guru	Sita	Madhura	Vrsya, Hridya, Ruchya, Rakta-Pittahara, Kaphakara, Guru
Kanda (Stem) [53]	Madhura, Kashaya	Guru, Ruksha	Sita	Madhura	Balya, Dipana, Kapha-Pittahara, Keshya, Ruchya
Pushpa Flower) [53]	Madhura, Tuvara	Sanigdha	Sita	Madhura	Vata-Pittahara, Rakta-Pitahara, Kshayahara

Phytochemicals and mineral contents:
Catecholamines such as norepinephrine, serotonin, dopamine [54]. Tryptophan, indol compounds [56] pectin have been found in the pulp. Several flavonoids and related compounds (Leucocyanidin, quercetin and its 3-Ogalactoside, 3-O-glucoside, and 3-Orhamnosyl glucoside) were isolated from the unripe pulp of plantain. Serotonin, norepinephrine, tryptophan, indole compounds, tannin, starch, iron, crystallisable and noncrystallisable sugars, vitamin C, B-vitamins, albuminoids, fats, mineral salts have been found in the fruit pulp of *M. paradisiaca* and *M. sapientum*. Carbohydrates have been isolated from *M. sapientum*. Cellulose, hemicelluloses, arginine, aspartic acid, glutamic acid, leucine, valine, phenylalanine and threonine have been isolated from pulp and peel of *M. paradisiaca*. Hemiterpenoid glucoside (1, 1-dimethylallylalcohol), syringin, (**6S**, 9R)-roseoside, benzyl alcohol glucoside, (24R)-4α, l4 α, 24-trimethyl-Sacholesta-8, 25 (27) dien-3β-o1 have been isolated from flower of *M. paradisiacal [*57]. Bract-Alkaloids, Saponins, Glycosides, Tannins. Floret-Alkaloids, Saponins, Glycosides, Tannins, Flavanoids, Terpenoids. [58]

Pharmacological Activity Based on Researches:
The various effects of *M. paradisiaca* are documented in traditional as well as scientific literature. The main pharmacological effects of this plant are-diuretic, analgesic, antiulcer, wound healing, antioxidant, hypoglycaemic activities mutagenic effects in which few are reported.

Antifungal activity
Effect of plantain Musa paradisiaca peel and stalk extracts were investigated for determining the antifungal action, using percentage inhibition test. Complete inhibition of growth (100%)was observed for Aspergillus niger, Aspergillus oryzae and Rhizopus stolonifer at 1.0 mg/ml concentration of stalk extract. Peel extract inhibited A. niger 100%, A. oryzae 76.67% and R. stolonifer 56.67% at the same concentration. As concentration reduces, growth inhibition reduces also up to the minimum inhibitory concentration [59]. The results further justify the claim that Musa paradisiaca stalk and peel extract demonstrated antifungal action in which methanol was seen to be a better solvent for extracting active ingredients from medicinal plants considering the high susceptibility of test organisms to methanol extract than ethanol extract [60].

Antidiabetic activity
Aqueous extracts and methanolic fractions of *M. paradisiaca* flowers and bract produced antidiabetic effect in male Wistar rats experimentally induced diabetes using intravenous streptozotocin (STZ). All the extracts and fractions, however, had improvement relative to the untreated control group due to the presence of flavonol glycoside and anthocyanins in the fractions and extracts which have severally been shown to possess anti-hyperglycaemic activity [61]. Validate the antidiabetic activity of methanolic flower extract attributable to the polyphenolic compound and dietary fibres present, thus backing calls for the exploration of inflorescence as a potential functional food and/or nutraceutical with excellent nutritional and organoleptic properties. [62]

Antiulcer activity
Histological studies showed that banana treatment sections showed a greater aggregation and intensity of pink spots when compared to controls. This study suggests that banana powder treatment not only strengthens mucosal resistance against ulcerogens but also promotes healing by inducing cellular proliferation [63]. The active ulcerogenic ingredient was extracted from unripe plantain banana by solvent fractionation and identified by chromatography, spectroscopy and HPLC. As the flavanoidleucocyanidin and purified synthetic leucocyanidin demonstrated significant ($p<0.05$) protective effect against aspirin induced erosion. Extracts of plantain (*Musa paradisiaca* Linn. var. paradisiaca was studied on the accumulation of eicosanoids in incubates of human gastric and colonic mucosa. The extract (50mg/kg twice daily for 5 days) showed significant antiulcer effect and antioxidant activity in gastric mucosa homogenates where it reversed the increase in ulcer index, lipid peroxidation and superoxide dismutase values induced by stress [64].

Antioxidant property:
The antioxidant behavior of the extracts was evaluated by using the thiocyanate method, ßcarotene bleaching method and 1, 1-diphenyl-2-picrylhydrazyl (DPPH) free radical elimination. Antioxidant activity of water extracts was comparable to those of synthetic antioxidants such as butylated hydroxyanisole and butylated hydroxytoluene and it shows a significant antioxidant property. The antioxidant effects of crude extracts from green banana and yellow peel were investigated and the results indicated that the extract of green peelrecorded more significant activities than that of yellow peel at other solvents extracts [65].

Wound healing activity:
The rats were given graded dose of (50-200 Kg/day) of aqueous and methanolic extract of *Musa paradisiaca sapientum* var. paradisiaca orally for a period of 10-21 days depending upon the type of study. Both extracts when studied for incision and dead space wounds parameters increased wound breaking strength and levels of hydroxyl proline, hexuronic acid, hexosamine, superoxide dismutase, reduced glutathione in the granulation tissue and decreased percentage of wound area, scar area when compared with the control group both the extracts showed good safety profile [66].

Hair growth Promoting Activity
Savali *et al*., tested the effect of aqueous and methanolic extract of *M. paradisiaca* unripe fruits for hair growth promoting activity by studying hair length and microscopic

study of follicles in vehicle control, 2% monoxide treated and extract treated animals. Animals treated with aqueous and methanolic extract of *M. paradisiaca* showed better efficacy as compared to the control and standard group suggests that it has potential as a hair growth promoter [67].

Antisnake Venom Activity

Borges *et al*., reported invitro inhibition of Phospholipase A2, myotoxic and hemorrhagic activities by *Musa paradisiaca* stem extract. Partial chemical characterization of MsE showed the presence of polyphenols and tannins and they are known to non-specifically inactivate proteins. MsE does not show protection against the toxic effects of snake venoms in vivo in mouse model [68].

Hepatoprotective Activity

Nirmala *et al*., investigated the hepatoprotective activity of alcoholic and aqueous stem extracts of Musa paradisiaca in CCl4 and paracetamol induced hepatotoxicity models in rats. Pretreatment with alcoholic extract (500 mg/kg), more significantly and to a lesser extent the alcoholic extract (250 mg/kg) and aqueous extract (500 mg/kg), reduced the elevated levels of the serum enzymes like serum glutamic-oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), alkaline phosphatase (ALP) and bilirubin levels and alcoholic and aqueous extracts reversed the hepatic damage towards the normal [69].

Antidepressant Activity

Parle and Malik reported significant antidepressant potential of *Musa paradisiaca* fruit paste (5%, 10% and 20% w/w once daily for 15 successive days) in forced swim test and tail suspension test. Baclofen (10 mg/kg, i.p.), prazosin (62.5 mg/kg, i.p.) and p-CPA (100 mg/kg, i.p.) significantly antagonized this reduction in immobility time. Furthermore, *Musa paradisiaca* paste inhibited significantly the Monoamine oxidase and malondialdehyde levels. These findings reveal the anti-depressant potential of banana fruit appears to be related to anti-oxidant, pro-adrenergic, pro-serotonergic and/ or Monoamine oxidase inhibitory activity exhibited by the banana fruit [70]. Darji and Galani also reported significant reduction of the immobility time with 14 days treatment of hydroalcoholic extract of *Musa paradisiaca* fruit (250 and 500 mg/kg, p. o.) in the forced swim test and tail suspension test. Antidepressant potential of the fruit extract was reduced by Haloperidol (0.1 mg/kg, i.p.) and increased by Bromocriptine mesylate (2 mg/kg, i.p.). The neurochemical estimation revealed the level of norepinephrine, dopamine and serotonin were increased with 14 days fruit extract treatment [71].

Toxicity Study

Avirami *et al.,* evaluated toxicity profiles of pseudostem juice of *Musa paradisiaca* using acute oral toxicity and repeated dose 28-day oral toxicity as per OECD 425 and 407 respectively. During the entire period of study, behavioural changes, food intake, water intake and weekly body weight changes were evaluated. At the end of the treatment, serum samples were subjected to biochemical analysis. The data of the results obtained depicted that *Musa paradisiaca* L (pseudostem) juice administered at the dose level 2000 mg/kg for 28 days is very safe and has not produced any significant changes in both body weight changes and biochemical parameters [72].

Antihypertensive Activity

Osim *et al*., reported antihypertensive effect of ripe banana pulp (50 g/rat/day) in deoxycorticosterone enantate (DOC, 25 mg/rat) induced hypertensive rats. This effect may be due to the high tryptophan and carbohydrate content of banana that increases serotonin levels and gives serotonin-mediated natriuretic effect. Orie reported that the effect of aqueous extract of plantain (*Musa paradisiaca*) showed concentration dependant hypotensive effect in both noradrenaline and potassium chloride-contracted aortic rings and portal vein isolated from rat [73].

4. Discussion

Kadali (Musa paradisiaca) *were* reviewed from ancient as well as recent texts. Maximum 8 synonyms are described in different Nighantu, Raj Nighantu *kaidev* Nighantu, Bhavprakash Nighantu and common synonyms of *Palash* are *Kinshuk, Yadneya, Samidvar* and *Raktpushpak. Kadali have* dominance of According to Kaiyadeva Nighantu *Rasa Tikta-Kashaya, Veerya Ushna Doshaghnata-Kaphanaashaka (*absorption of *Kapha), Pramehaghna (*Anti-diabetic*), Shothagna (*anti-inflammatory*),* Vranaropana *(*wound healing), anti-depressant, Hepato protective, anti-sanke venom actions. Review consist of different formulations useful in *Prameha* as well pharmacological action like Anti-oxidant, Anti-diabetic, Anti-hyerlipidemic, Anti-malarial, wound healing, Analgesic, Antifungal, Anti-inflammation activities which are useful against diabetes. *Musa paradisiacal under* major heads general information, pharmacognostical, chemical, Pharmacological, clinical studies with references. In this review paper maximum 10 no. of formulation are used in various diseases and in pharmacological activities there are more than 30 diseases cure by *Kadali.* The review article focused on new finding on *Musa paradisiacal flower* like neautraceutical value of flower, micrometry, microscopy, macroscopy & analytical study.

5. Conclusion

The detailed review of *Kadali (Musa paradisiaca) was* compiled from ancient as well as recent texts and various researches on pharmcognostical, phytochemistery & pharmacological actions of *Kadali* so it was concluded that the *Kadali (Musa paradisiaca)* had many properties and it's very useful in many diseases as it reviewed in detailed in many researches. *Kadali (Musa paradisiaca)* leaves were used in antimalarial, anti-depressant, anti-snake venom antidiabetic, anti-inflammatory & anti-oxidant. Flower of *Kadali* were used in anti-cancer, anti-convulsant, antidiabetic, anti-oxidant, antimycobacterial activity, antimicrobial. Seeds of *Kadali* were used in hormone in balancing effect, anti-implantation activity & antihelmintic effect. This review article helpful for all the Ph. d researcher because all the references are used in this review article from API, Nighnatu, Samhita, Text books of Darvya guna & pharmacognosy and some of previous review & research article.

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