



Review Paper

Medicinal plants of genus *Ipomoea* found in Uttar-Pradesh, India

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Abstract

About 600-700 species of *Ipomoea*, *Convolvulaceae*, are found throughout tropical and subtropical regions of the world. Several of them have been used as ornamental plants, food, medicines or in religious ritual. These species are used for the treatment of several diseases, such as, fatigue, inflammations, hypertension, diabetes, dysentery, constipation, rheumatism, arthritis, rheumatism, meningitis, and hydrocephaly. Some of these species showed antimicrobial, anticoagulant, analgesic, hypoglycemic and anticancer activities. The present study deals with genus *Ipomoea* of family *Convolvulaceae* from various division of Uttar Pradesh. A total 22 species of the genus have been collected from various district of Uttar Pradesh on the basis of collection made from May 2014 till June 2017. The present paper illustrates the synonyms, common name, Taxonomic description, medicinal properties and active ingredients of the *Ipomoea* species present in this state.

Keywords: *Convolvulaceae*, *Ipomoea*, Medicinal properties, chemical constituents, Uttar Pradesh.

Introduction

The family *Convolvulaceae* is acknowledged as Morning glory family. About 2000 species of 58 genera are distributed overall the world, mainly in the tropics and subtropics region¹. Approximately one third of the species are included into major genera *Ipomoea* and *Convolvulus*². Genus *Ipomoea* represented by 650 species distributed worldwide³. In India family *Convolvulaceae* is represented by 20 genera and 158 species occurring chiefly in the southern and western India. Over 60 species of *Ipomoea* are reported in India⁴. It is widely distributed and occurs especially in damp places of Gujarat, Bihar, West Bengal, Chhattisgarh, Maharashtra, Western Ghats, Goa and Karnataka. Many investigators have worked on various topics of *Ipomoea* biodiversity, distribution, structure, distribution, development and taxonomic importance of stomata and epidermal studies⁵⁻⁸. This paper highlights the medicinal importance plant of genus *Ipomoea* present in Uttar Pradesh. In India, Uttar Pradesh is the most populated and one of the largest states in the country. Plant diversity in this region is adversely affected by the fastest increase in urbanization, industrialization and road construction. The genus *Ipomoea* consists of mainly climbing herbs and weeds which are distributed on disturbed sight or unused areas. Due to lack of knowledge about the utility of the plant, these species are rapidly destroyed from various places. Some species like *Ipomoea batatas* and *Ipomoea aquatica* are however cultivated but many species like *Ipomoea carnea* and *Ipomoea cairica* are treated as weeds. Recent research has shown that these and many other plants of this genus possess medicinal potential in various diseases. So their conservation is needed and also the knowledge of their utility so that their protection can be assured by local people. In this

respect the present work represent the medicinal use of such plants of Genus *Ipomoea*, their synonyms, common name and active chemical compound are also reported.

Material and methods

Uttar Pradesh is divided into 75 districts under these 18 divisions: Allahabad, Aligarh, Agra, Azamgarh, Basti, Bareilly, Chitrakoot, Devipatan, Faizabad, Gorakhpur, Jhansi, Kanpur, Lucknow, Moradabad, Meerut, and Mirzapur, Saharanpur and Varanasi. These 18 divisions are considered for survey of genus *Ipomoea* from May 2014 till June 2017 for different species of genus *Ipomoea* and their medicinal values. The identification of plant species were done with the help of district flora of Uttar Pradesh and photographic documentation was also done. During visit the traditional uses, local name and medicinal properties of plants were noted on the spot by discussion with native people and confirmed with the help of literature. The collected specimens were pressed dried, prepared herbarium and identified by matching their specimens lodged in the Departmental herbarium of Gorakhpur University and Lucknow University^{9,10}.

Results and discussion

The *Ipomoea* species found in different division of Uttar Pradesh are demonstrated in alphabetical order as follows-

Ipomoea alba L.

Synonyms: *Calonyction aculeatum* House; *Calonyction bonnox* (L.) Bojer; *Ipomoea ambigua* Endl.; *Ipomoea bona-nox* L., *Ipomoea carinata* Endl.

Common names: White morning glory, Moon vine, Ganbhowra.

Hindi name: Dudhiakalmi.

Medicinal properties: The whole herb is used as antibacterial, purgative, emetic and in snakebite. Flowers infusion is taken as a blood purifier¹¹. It is also used in Dermatitis against itching and to treat headache¹².

Active Ingredients: The plant contains tannic acid, oxalate, phytic acid, cynogenic glucoside, pentasaccharide glucoside of ethyle-II-hydroxy hexadecanoate¹³. It also contains Albinosides I-III and Albinosinic acid¹⁴. The seeds contain alkaloids, ipomine, isoipomine, methoxyipomine, dimethoxyipomine, ipalkidinium, ipalbidine and ipalbine¹⁵.

Distribution in Uttar Pradesh, India: Meerut.

***Ipomoea aquatica* Forssk.**

Synonyms: *Ipomoea reptana*, Poir.

Common name: River spinach, Water morning glory, Swamp Cabbage.

Hindi name: Kurmi, Nadishak, Kalambi.

Medicinal properties: Whole plant is blood purifier, mild purgative, emetic, used as antidote for opium and arsenic poisoning, improves nervous and general debility. It is also used as emetic, diuretic, purgative, liver complaints against nosebleed and high blood pressure¹⁶. Plant extract is applied on the affected sites to treat poisonous insect bite and used in diabetic^{17, 18}.

Active Ingredient: The leaves are a good source of vitamins and minerals especially, carotene and tocopherol. Whole plant gave beta-carotene, xanthophyll, and traces of taraxanthin, hentriacontane, beta-sitosterol and its glucoside.

Distribution in Uttar Pradesh, India: Gorakhpur, Mau, Fatepur, Moradabad, Meerut.

***Ipomoea batatas* L.(Lam.)**

Synonyms: *Ipomoea fastigata* Choisy.

Common name: Sweet Potato, Milky Yam.

Hindi Name: Shaker Kand, Meetha aalu.

Medicinal properties: It is reported to be laxative, alterative, demulcent, aphrodisiac, tonic, astringent, bactericide and fungicide. It is folk therapy for asthma, bug-bites, burns, fever, ciguatera, convalescence, diarrhoea, nausea, spleenosis, renosis, stomach distress, tumors and whitlows¹⁹. It is cholagogue, galactagogue, alternative, demulcent and purgative. Flour of raw rhizome is given in enlargement of liver and spleen, also for menorrhagia and debility. It possess wound healing, antioxidant, anti-diabetic, anti-ulcer, anti-bacterial, anti-cancerous and anti-mutagenic activities^{20, 21}.

Active Ingredients: The tuberous root is rich in dietary fibers, iron, copper, potassium, manganese, vitamin A, vitamin B₆ and vitamin C. It contains alkaloids, saponins, tannins, steroids, anthocyanins, flavonoids, anthroquinones and Caffeic acid derivative. The main constituents of oil are abietadiene, β caryophyllebe, trans-(Z)- α -bergamotol, abieta 8, 11, 13-triene, cissabinene and spathulenol²².

Distribution in Uttar Pradesh, India: P.P. Ganj, Gorakhpur, Fatepur, Ghaziabad, Eastern U.P., Kannauj and Moradabad.

***Ipomoea cairica* (L.) Sweet**

Synonyms: *Ipomoea palmate* Forsk., *Ipomoea stipulacea* Jacq., *Ipomoea tuberculata* (Desr.) Roem.

Common name: Mile-a-minute vine, Messina Creeper, Cairo Morning Glory, Railroad creeper, Coast Morning glory, Panj-pani-poti-aal.

Hindi Name: Giriya-val, Chatribel.

Medicinal properties: It is medicinally used as an antioxidant, anti-inflammatory, antiviral and highly potent against malaria. It is used in Rheumatism and inflammations^{17, 23}. It can be used as carminative agent and lessens inflammation, and is useful in fever, jaundice, biliousness, bronchitis, liver complaints and anti-cancerous^{21, 24}.

Active Ingredients: The detected phytochemicals in leaves extract are alkaloids, flavonoids, steroids, triterpenoids, reducing sugars, tannins, gums and saponins, etc. In stem extract flavonoids, steroids and triterpenoids, reducing sugars, tannins and saponins are present. Lignans, arctigenin, matairesinol and trachelogenin, indole alkaloids Cairicate, Methoxycairicate and myristyl alcohol are also reported^{21, 25}.

Distribution in Uttar Pradesh, India: Gorakhpur, Fatepur, Eastern U.P., Moradabad, Meerut.

***Ipomoea carnea* Jacq.**

Synonyms: *Ipomoea fistulosa* (Mart.ex Choisy) D. Austin, *I. crassicaulis* (Benth.) B L Rob., *Batatas crassicaulis* Benth.

Common name: Bush Morning Glory, Pink morning glory.

Hindi name: Behya, Beshram.

Medicinal properties: It possess antioxidant, antimicrobial, antibacterial, antifungal, anticancer, anticonvulsant, immune-modulatory, anti-diabetic, hepato-protective, anticancer, anti-inflammatory, anxiolytic, sedative, wound healing and embryo toxic activities. Leaves are used as purgative. Leaves paste is applied on 'Haja' (a kind of sore between toes and fingers due to fungal infection)²⁶⁻²⁸.

Active Ingredients: The bioactive compounds reported are glycosides, reducing sugars, alkaloids, flavonoids, esters, fatty acid, alcohol and tannins²⁸⁻³⁰. The leaves possess alkaloids, hexadecanoic acid, saponins, stearic acid, 1, 2 diethyl phthalate, phenolic compounds, n-octadecanol, octacosane, hexatriacontane, tetracontane, 3-diethylamino-1- propanol, xanthoproteins and flavonoid²⁹⁻³².

Distribution in Uttar Pradesh, India: Gorakhpur, Eastern U.P., Moradabad, Meerut.

***Ipomoea digitata* Linn.**

Synonyms: *Ipomoea mauritiana* Jacq., *Ipomoea paniculata* (Linn.) R. Br.

Common name: Bhumi-kushmanda, Bhuiin Kakhaaru, Milk yam, giant potato.

Hindi Name: Vidhari Khand, Bhumi- Kumra, Ksheervidari.

Medicinal properties: The tubers of this plant are used as tonic, alterative, aphrodisiac, galactagogue, demulcent,

lactagogue, purgative, cholagogue and have antioxidant and immunomodulatory activities³³. It is mainly used to increase secretion of milk, enlarged liver and spleen, increases weight, moderate menstrual discharge, poor digestion also for menorrhagia, debility and fat accumulation^{15,34}. From the ancient period of time this plant was used as hyperglycemic, anti-inflammatory, anticonvulsant and aphrodisiac. Decoctions of root against constipation³⁵.

Active Ingredients The rhizome of the herb contains beta-sitosterol and taraxerol acetate. Ergonovine, isobutyric(S)-2-methylbutyric, tiglic, n-decanoic, n-dodecanoic, cinnamic acids, and two glycosidic acids, quamoclinic acid A and operculinic acid A are recently reported in this plant^{34, 35}.

Distribution in Uttar Pradesh, India: Moradabad, Gorakhpur.

***Ipomoea eriocarpa* R. Br.**

Synonyms: *Ipomoea hispida* Roem and Schult, *Ipomoea sessiliflora*.

Common name: Tiny morning glory, wooly fruit morning glory, Aakhukarni, Sheetavalli, Nakhari.

Hindi Name: Ranbhovaari, Maalghanti.

Medicinal properties: The whole plant of *Ipomoea eriocarpa* is used for fever, ulcer and rheumatism and recently reported for anti-diabetic activity³⁶. An oil extract of the plant is used for external application in the treatment of headache, rheumatism, leprosy, epilepsy, ulcers and fever. A root decoction is drunk by woman to relieve menstrual pain. In veterinary medicine the oil extract is used to cure wounds of cattle³⁷.

Active Ingredients: Phytochemical analysis revealed the presence of phyto-constituents such as carbohydrates, proteins, alkaloids, flavonoids, saponins and glycosides in the plant.

Distribution in Uttar Pradesh: Magahar, Gorakhpur, Eastern UP.

***Ipomoea hederacea* Jacq.**

Synonyms: *Ipomoea nil* (L.) Roth., *Ipomoea coerula* Koen., *Pharbitis nil* (L.) Choisy, *Convolvulus nil* L., *Convolvulus hederaceus* L., *Ipomoea githaginea* Hochst. Ex A. Rich., *Ipomoea scabra* Forssk, *Pharbitis nil* (L.) Choisy.

Common name: ivy leaved morning glory; Mexican morning glory, Japanese morning glory, picotee morning glory, white edge morning glory, blue morning glory.

Hindi Name: Kaladana, Nilpushpa,

Medicinal uses: The seeds are useful in treating syphilis's, bleeding piles, calculus disease, dyspnoea, abdominal pain, tuberculosis, and used as antidote for hydrophobia. It is also purgative. It is known to be useful for treating sterility and increasing fertility. Its extract is used as anticonvulsant and sex enhancer due to presence of Lysergic acid derivatives and clavinet alkaloids. In China the seeds known as "Pharbitis Semen" are regarded as diuretic, anthelmintic and laxative and are prescribed for oedema and constipation to promote menstruation or cause abortion. Seeds are used in anti-inflammatory, carminative, depurative, purgative, vermifuge, constipation, dyspepsia, bronchitis, fever, skin diseases, scabies and spleenopathy^{15, 38}.

Active Ingredients The seed gave alkaloids like Lysergol, chanoclavine, penniclavine, iso-penniclavine and elymoclavine. Seeds contain Glycerides of palmitic acid, stearic acid, arachidic acid, behenic acid, oleic acid, linoleic acid. The seeds also contain the phenolic amides pharnilatins A and B, the oleanene type triterpene glycosides pharbitosides A and B, together with β -sitosterol, β -sitosterol glucoside (daucosterol), caffeic acid, methyl caffeoate, phytoosterogens, pharsyringaresinol and pharbilignoside, as well as the phenylethanoid glycoside pharbiniloside³⁸.

Distribution in Uttar Pradesh, India: Moradabad, Tulsipur, Gorakhpur, Fatepur, Eastern U.P., Meerut.

***Ipomoea hederifolia* L**

Synonyms: *Ipomoea angulata* Lam., *Ipomoea coccinea* Sesse and Moc., *Ipomoea phoenocoea* Roxb., *Ipomoea coccinea* var. *hederifolia* (L) Gray, *Ipomoea luteola* Jacq.

Common name: Scarlet morning glory, Scarlet creeper, Stars Ipomoea

Hindi name: Lal Pungli

Medicinal uses: It possess anti-inflammatory, oxytoxic, antioxidant, anticancer, anti-psychotic and anti-microbial properties³⁹.

Active Ingredients: Reports confirms presence of phytosterols, alkaloids, glycosides, phytosterols, saponins, flavonoids, carbohydrates, proteins and amino acids. Recent investigation suggest that *Ipomoea hederifolia* contains chemicals like pyrrolizidine alkaloids, ipagulines, calystegines, isoipagulins, ergoline derivatives, cyanogenic glycosides and some isoenzymes³⁹.

Distribution in Uttar Pradesh, Inida: Agra, Meerut

***Ipomoea indica* L.**

Synonyms: *Convolvulus acuminatus* Vahl, *Convolvulus congestus* (R. Br.) Spreng., *Convolvulus indicus* Burn., *Ipomoea acuminata* (Vahl) Roem and Schult, *Ipomoea cathartica* Poir, *Ipomoea cataractae* Endl., *Ipomoea congesta* R.Br., *Ipomoea insularis* (Choisy) Steud., *Ipomoea learii* Lindl., *Ipomoea learii* Paxton, *Ipomoea mutabilis* Lindl., *Pharbitis cathartica* (Poir.) Choisy, *Pharbitis insularis* Choisy

Common name: Common morning glory, blue morning glory, ocean blue morning glory and blue dawn flower

Hindi Name: Bhamardi, Ghagula, Gariya

Medicinal uses: It has been reported for antimicrobial, antiviral, anti-inflammatory, antipyretic and anticancerous activities; sap from crushed leaves is used to cure dysentery. It possesses laxative properties and root paste applied to backaches and sore muscles as a poultice⁴⁰. Silver nanoparticle and *I. indica* is effective at inhibiting inflammations and may be used to treat inflammatory diseases⁴¹.

Active Ingredients: A recent report confirms the presence of alkaloids, flavonoids, Glycosides, Tannins, Phlobatanins and terpenoids⁴².

Distribution in Uttar Pradesh, Inida: Gorakhpur, Allahabad, Deoria

***Ipomoea muricata* (L.) Jacq.**

Synonyms: *Ipomoea turbinata* Lag., *Calonyction muricatum* (L.) G. Don., *Ipomoea petiolaris* (Kunth) G. Don., *Convolvulus muricatus* L., *Ipomoea bona-nox.purpurascens* Ker Gawl, *Ipomoea calderonii* Standl., *Ipomoea spinulosa* Brandegee.

Common name: Lavender moon vine, purple moon vine, Tonkin, Tukm-i-nil, Bhingari, Travellers midnight lilies.

Hindi Name: Bhingari, Krishnabija

Medicinal uses: The plant is aphrodisiac, purgative, analgesic, antiseptic, febrifuge, antimicrobial and antifungal. Seeds are cardiac depressant, psychotropic, hypotensive, antibacterial, spasmolytic and intestine stimulating properties. The juice of this plant is used to destroy bedbugs. The seeds, stems and leaves are said to be effective in treating several types of skin ailments such as chronic and gangrenous wounds, cuts and blisters due to burns. According to recent report *Ipomoea muricata* is also useful in Alzheimer's disease, as Cardiac depressant. Glycerol preparation of the crude drug plant is used for the treatment of Pharyngitis and otitis externa^{17, 43, 44}.

Active Ingredients: Its seed contain indolizidine alkaloids, resin glycosides, Lysergol. Two resin glycosides and muricatins VII and VIII have been isolated from the seeds.

Distribution in Uttar Pradesh, Inida: Magahar, Gorakhpur, Ghaziabad, Moradabad, Allahabad

***Ipomoea obscura* (L.) Ker-Gawl**

Synonyms: *Convolvulus obscures*; *Ipomoea fragilis* Choisy, *Ipomoea acanthocarpa* (Choisy) Asch and Schweinf., *Ipomoea inconspicua* Bak., *Ipomoea luteola* R. Br. Prodr.; *Ipomoea tenuis* EMey ex Hallier; *Merremia geophiloides* A chev., *Convolvulus insuavis* (Blume) D.Dietr., *Ipomoea insuavis* Blume

Common name: Obscure morning glory, small white morning glory,

Hindi Name: Pan-bel, Laksmana, Vachagandha.

Medicinal uses: Dried and powdered leaves are used to treat aphthae and applied on sores, hemorrhoids and swelling⁴⁵. The tuberous roots of the plant are brittle, mucilaginous and bitter to taste and they contain a resin which is medicinal as tonic, alterative, demulcent, lactagogue, cholagogue, etc. Dried and powdered roots of the plant are curative of spleen and liver complaints, debility and fat accumulation. It is reported to have antioxidant, antibacterial, Hepatoprotective activities⁴⁶.

Active Ingredients: It contains Carotene, Cynogenic glycerides, flavanoid, coumarins, emodins and phenolics⁴⁶.

Distribution in Uttar Pradesh, Inida: Ramgarh village, Gorakhpur, Eastern U.P., Kannauj district, Meerut

***Ipomoea pestigridis* L.**

Synonyms: *Ipomoea biloba* Forsk., *Convolvulus pes-caprae* L.

Common name: Tiger-foot morning glory, Bowervel, Chokhbhilai.

Hindi Name: Panchpatia, Vagpadi.

Medicinal properties: It possesses antimicrobial, analgesic, thrombocytic and cytotoxic activities⁴⁷. Roots are used in boils, carbuncles, ulcers and as antidote to dog bite and snake bites⁴⁸. Its leaves extract is administered orally for treatment of

intestinal worms⁴⁹. Roots are proved beneficial for women in urinary retention, constipation and gynecological disorder and also useful purgative⁵⁰. Whole plant along with bread is eaten for healing wound. It possesses Analgesic and neuropharmacological effect⁵¹⁻⁵³. Cytotoxic activity against HepG2 cell line has also been reported⁵⁴.

Active Ingredients: The presence of alkaloids, saponins, flavanoids, biflavonyls, hydrocarbon, auronnes, and tannins in root and leaf extracts are reported in this plant^{54, 55}.

Distribution in Uttar Pradesh, Inida: Lachmipur, Maghar, Gorakhpur, Ghaziabad, Easter U.P.

***Ipomoea purpurea* (L.) Roth.**

Synonyms: *Ipomoea hirsutula* Jacq.F., *Convolvulus purpureus* L., *Ipomoea purpurea* var. *diversifolia* (Lindl.) O'Donell, *Phrabis purpurea* (L.) Voigt.

Common name: Tall morning glory, Common morning glory, Purple morning glory.

Hindi Name: Not known.

Medicinal uses: It is used as laxative, hallucinogen, and purgative, in the treatment of oedema, syphilis, oliguria, ascariasis and constipation. The seed is psychedelic, anthelmintic, antibacterial, diuretic, laxative and contain hallucinogenic alkaloids which can be used in treatment of various mental disorders and can be toxic depending on the dose ingested^{15, 56}.

Active Ingredients: The plant contain LSA whose effect are reported to be comparable to LSD. The seed contains small quantities of the hallucinogen LSD. The stem contains a soft resin, essential oil and tannin. It contains ipuranol, which is identical with sitosterol glucoside, ipurolic acid, dmethyl acetic acid, hydroxylauric acid and glucose¹⁵.

Distribution in Uttar Pradesh, Inida: Gorakhpur, Lucknow.

***Ipomoea quamoclit* L.**

Synonyms: *Quamoclit pennata* (Desr.) Bojer, *Quamoclit vulgaris* Choisy.

Common name: Cyperus vine, Indian Pink, Star Glory, Humming bird vine.

Hindi Name: Longlata, Kaamlata, Ganesh vel, Kamini.

Medicinal properties: It is useful in haemorrhoides, carbuncles, piles and diabetes. It is antipyretic, hypotensive and emollient. Leaf paste in water is used as poultice in bleeding piles. The whole plant is crushed and applied externally on carbuncles. The juice is used along with other ingredients in case of blood dysentery, piles and body weakness. Its seed is laxative, crushed root with sugar administered orally to cure passing of semen with urine. Its leaves are beneficial in ulcer, chest pain stem are helpful in fever, diabetes, it is also antioxidant and antimicrobial⁵⁷⁻⁶⁰.

Active Ingredient: It contains Lauric acid, Palmitic acid, Stearic acid, Oleic acid, Linoleic acid, Linolenic acid. Leaves and stems contain small amounts of alkaloids and cyanogenetic glycosides. Seeds contain the resin glycosides, quamoclitins I-IV and jalapin; 7-O- β -D-glucopyranosyl-dihydroquercetin-3-O- α -D Glucopyranosi^{21, 42, 60}.

Distribution in Uttar Pradesh, Inida: Gorakhpur, Eastern U.P., Meerut

***Ipomoea reniformis* Chois.**

Synonyms: *Merremia emarginata* (Brum.F.) Hailler F.

Common name: Underkani, Aakhuparni, Aakhuparnika, Undurkarnikaa.

Hindi name: Mushkani.

Medicinal uses: It is diuretic, purgative, alterative, used for epilepsy, migraines, rheumatic affections, neuralgia, headache, skin disease, cough, ulcers, abscesses and urinary affections; snake and rat bites, inflammation, troubles of nose, fever due to enlargement of liver and also kidney diseases^{15,61-63}.

Active ingredients: The presence of scopoletin, resin, glycosides, reducing sugars, fat, amino acids, tannins and starch Saponins, flavonoids, anthraquinones, cytogenic glycosides and coumarin are reported while alkaloids are absent^{62,63}.

Distribution in Uttar Pradesh, India: Jaunpur, Gorakhpur.

***Ipomoea seiparia* Koenig ex Roxb.**

Synonyms: *Ipomoea maxima* (Linn.f) G. Don; *I. stipulacea* Clarke.

Common name: Lakshmana, Manjika.

Hindi Name: Hanumann Vel.

Medicinal uses: It possess number of therapeutic properties like aphrodisiac, a good antidote to arsenic, rejuvenating, diuretic, laxative, also used in burning sensation, hyperdisipia, general debility and sternity in woman and in diabetic. Juice of the plant is deobstruent, diuretic, hypotensive, uterine tonic, antidote to arsenic poisoning. Seeds are cardiac depressant, spasmolytic, antidote for arsenic poisoning^{15,64,65}.

Active Ingredients: Its leaves showed the presence of saponins, glycosides, resins, flavonoids, alkaloids, tannins, terpenoids, phytosterols and other phenolic compounds^{64,65}.

Distribution in Uttar Pradesh, Inida: Gazipur, Gorakhpur

***Ipomoea indica* Stapf.**

Synonyms: *Convolvulus scindicus* Stocks.

Common name: Sind Morning glory.

Hindi name: Peeri- fuderdi.

Medicinal Properties: Leaf paste anti-inflammatory.

Active ingredients: The phytochemical studies on *Ipomoea indica* has to be done to confirm the active ingredients present in this plant.

Distribution in Uttar Pradesh, India: Jaunpur.

***Ipomoea sinuata* Ortega**

Synonyms: *Merremia dissecta*; *Convolvulus dissectus* (Jacq.)

Common name: Snakevine, Alamo vine, Noyau Vine, bind weed, cutleaf morning glory, noon flower, white convolvulus creeper.

Hindi Name: Not known

Medicinal properties: An infusion of the leaves is taken as a sedative in the treatment of chest complaints. A cold infusion is a remedy for giddiness, snake bites or intoxication. A hot infusion is taken to relieve urinary infection. A decoction of the

whole plant, used as a wash, is an effective remedy for scabies and itch. A poultice of crushed fresh leaves is applied as a resolutive and sedative for treating inflammations⁶⁶.

Active Ingredients: The leaf contains cyanogenetic heteroside.

Distribution in Uttar Pradesh, Inida: Azamgarh, Gorakhpur.

***Ipomoea tuberosa* a Linn.**

Synonyms: *Merremia tuberosa* L. Rendle., *Ipomoea tuberosa*, *Operculina tuberosa*, *Ipomoea mendesii*, *Batatas tuberosa*

Common name: yellow morning glory, wood rose, seven fingers.

Hindi Name: Not known

Medicinal uses: Its tuber is a drastic purgative; its roots are useful for swollen bellies and intestinal diseases. A mixture is also drunk while fasting and to lower fevers⁶⁷.

Active Ingredients: Phytochemical studies have to be done of this plant to confirm the presence of active ingredient.

Distribution in Uttar Pradesh, Inida: Deoria, Gorakhpur

***Ipomoea triloba* Linn**

Synonyms: *Ipomoea krugii*

Common name: Little bell, three lobed morning glories, Aiea morning glory.

Hindi Name: Shakkaria, Ratalu

Medicinal uses: It is used as antioxidant, antimicrobial, antiviral, antibacterial, antifungal, hypotensive, analgesic, laxative and also possess anti-malarial, anti-tumour and wound healing capacity⁶⁸.

Active Ingredients: It possesses saponins, flavonoids, tannins, alkaloids, cardiac glycosides, terpenes and anthrax-quinones⁶⁸.

Distribution in Uttar Pradesh, Inida: Lucknow, Amravati.

***Ipomoea violacea* L.**

Synonyms: *Convolvulus violaceus* (L.)Spreng.; *Pharbitis violacea* (L.)Bojer; *Tereietra violacea* (L.) Raf.,

Common name: beach moon flower, sea moon flower

Hindi Name: Not known

Medicinal uses: Its root is used as diuretic, laxative, expectorant and for coughs. The leaves are prescribed for headaches and indigestion.

Active Ingredients: The compounds isolated from *Ipomoea violacea* are ergoline alkaloids, chanoclavine I and II, egine, elymoclavine, erginine, lysergol, ergometrine, ergometrinine, penniclavine. Its seed contains ergoline alkaloid – ergine, Calystegins B1 and C1⁶⁹.

Distribution in Uttar Pradesh, India: Gorakhpur.



Figure-1: *Ipomoea alba*.



Figure-2: *Ipomoea aquatica*



Figure-6: *Ipomoea digitata*



Figure-3: *Ipomoea batatas* (L.) Lam



Figure-7: *Ipomoea eriocarpa*



Figure-4: *Ipomoea cairica* (L.)



Figure-8: *Ipomoea herderacea*



Figure-5: *Ipomoea carnea.*



Figure-9: *Ipomoea herdifolia*



Figure-10: *Ipomoea indica*.



Figure-14: *Ipomoea pes-tigris*



Figure-11: *Ipomoea muricata*



Figure-15: *Ipomoea purpuria*

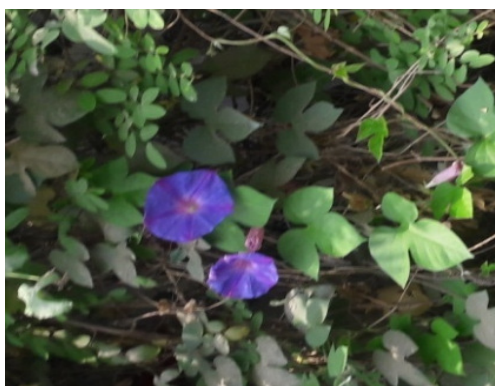


Figure-12: *Ipomoea nil*.



Figure-16: *Ipomoea quamocilt*



Figure-13: *Ipomoea obscura*



Figure-17: *Ipomoea reniformis*.



Figure-18: *Ipomoea seiparia*



Figure-22: *Ipomoea violacea*



Figure-19: *Ipomoea sinuate*.



Figure-20: *Ipomoea tuberosa*.

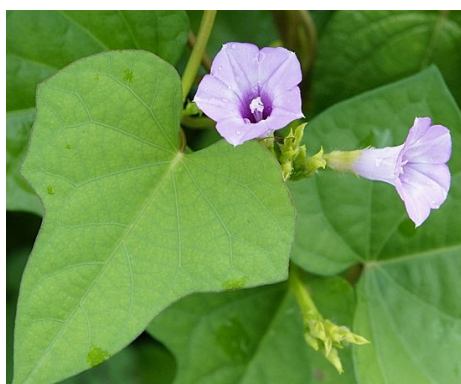


Figure-21: *Ipomoea triloba*

Discussion: Medicinal uses of different species of *Ipomoea* have been reported since ancient time. It has been used in treatment of various ailments such as diabetes, inflammations, rheumatism, arthritis, kidney ailments, digestive disorders and constipation etc. Significant progress on chemistry and pharmacological properties of different plants of this genus has been done in recent years. The plants of this genus are rich in phenolics, glycolipids, lignans and alkaloids which are highly potent bioactive medicinal compounds. Recent studies confirm the scientific basis of traditional uses of many plants of this genus. For example the studies conducted by Jabeen and Aslam, showed that the polyphenols rich crude extract of the dried aerial parts of *Ipomoea reniformis* has dose dependent blood pressure lowering effects in rats⁶³. Phytochemical analysis of *Ipomoea pestigridis* by Selvem *et al.*, confirmed the presence of flavones, flavonols, bioflavonyls, hydrocarbons, auronnes, tannins, terpenoids, glycosides and alkaloids in leaf and stems at varying concentration which supports the authenticity of this plant in traditional medicinal uses⁵⁵. Although, an extensive research work has been done on some plants of genus *Ipomoea*, yet a large number of species are still partially studied such as, *I. sindica*, *I. tuberosa*, *I. hederacea* etc. Therefore, a wide field for future research remains possible to explore the new active principle from these plants for medicinal advantages.

Conclusion

During our investigation of medicinally important *Ipomoea* species present in Uttar Pradesh. A total 22 medicinal plant species belonging to *Ipomoea* genera of Convolvulaceae family were collected from different Division of Uttar Pradesh. During excursions the species viz., *Ipomoea carnea*, *Ipomoea cairica*, *Ipomoea pestigridis* and *Ipomoea quamocilt* were found to be abundantly distributed throughout the state while the species like *Ipomoea violacea*, *Ipomoea seiparia*, *Ipomoea reniformis*, and *Ipomoea obscura* showed restricted distribution. Remaining species were distributed freely in surveyed areas. The lack of knowledge of this genus had made many of the useful medicinal plant endangered and at the verge of extinction. For example *Ipomoea violacea*, which were abundant a few year back in Gorakhpur District is towards extinction in this district, however some new species e.g. *Ipomoea tricolor* has been introduced in

this region which has not been reported earlier. It is essential to control the over exploitation, extensive destruction of vegetation in name of progress and to protect the existing species present in this state as their potential are still to be discovered. This study insists the compilation of knowledge about the utility of the plant so their protection can be assured.

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