Medicinal Plant Review: *Manjistha* (*Rubia cordifolia*)

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Abstract:
Now a day's lifestyle and diet of common people has been changed drastically which leads to imbalance of Doshavatha leading to various diseases formation in human body including Non Communicable Diseases such as Diabetes and Hypertension. Among diseases present, there are many diseases which doesn’t has drugs or related treatments available for complete cure.

Ayurveda is a complete & holistic system in which a number of drugs with multiple beneficial actions are available though a massive research is required to prove the beneficial effects of the drugs.

*Manjistha* (*Rubia cordifolia*) is a well known drug mentioned in Ayurveda used for various purposes by Acharya Charaka, Acharya Sushruta, Acarya Vagbhata and most of Nighantu in Ayurvedic literature also some Nighantu has specifically mentioned uses of parts of Manjistha.

Hence, plant *Manjistha* has been selected for complete Medicinal Plant Review a step towards standardization Ayurvedic Medicinal Plant.

Index Terms: *Manjistha, Rubia cordifolia, Ayurveda, Medicinal Plant*

Introduction:
*Manjistha* (*Rubia cordifolia*) commonly known as Indian Madder perennial, herbaceous, climbing belonging to family *Rubiacaeae*. It is commonly occurring throughout hilly regions in India.

Madder is used in Hindu medicine as a colouring agent; medicinal oils are boiled with Madder to give them colour.

It is also useful external astringent and is applied to inflamed parts, ulcers, fractures etc.

Literature Review:

Literature review of *Manjistha* (*Rubia cordifolia*) was done from Vedas up to recent works to obtain thorough knowledge about *Manjistha*.

Brihatrasay:

In CharakaSamhita it is mentioned in Jwahara, Varnya and Vishanagha varga and used in Kushtha as a content of Mustadi Churna (Chi. 7/65), in Vipadika as a content of Vipadikahara Ghrita Taila (Chi. 7/120), in Visarpa as a content of Mahagandhahastinamaka Agada (Chi.23/79), in Vrana as a content of Twakashuddhikara Pralpe (Chi. 25/114) and in Netra Roga as a content of Mahani Taila (Chi. 26/270).

In SusrutaSamhita* Manjistha* mentioned in Priyangvadi and Pittasamshana gandha and used in Kushtah Roga as Samangadi Taila (Chi. 3/7), in Vidradhi as a content of Mahavajraka Taila (Chi. 9/59) and in Vrana as a content of KarnaNagnanta Ghrita (Chi. 16/18).

In Ashtanga Hridaya it is mentioned in Varnya, Vishanahara, Jwarahara and Priyangvadi Varga and used in Vrana as a content of Jatya ghrita (Chi. 3/102), in Kshudra Roga as a content of Manjishthadi Taila (Chi. 32/31), as a content of Kukkumadi Taila in Kshudra Roga (Chi. 32/20) and in Kshetra Taila as a content of Champa Agada (Chi. 37/81-82).

Acharya Chakrapani has mentioned *Manjistha* in Jwara as a content of Angratilam (Chi. 1/127), in Jwara as a content of Yavachurnadi Tailam (Chi. 1/280) and in Daha as a content of Usheeradi Kwatha (Chi. 2/8).

Laghutrasy:


*Bhavaprakasha Samhita* has used *Manjistha* in Vrana Shotha as a content of Swarantaka Kurka Taila (Chi. 17/73), Jatya Taila (Chi. 47/92), in Kshubha as a content of MahabhallatakAvaleha (Chi. 54/87), Laghumanjishthadi Kwatha (Chi. 54/99), Madhyam Manjishthadi Kwatha (Chi. 54/111) and Brihatmanjishthadi Kwatha (Chi. 54/104).

Other Samhita:

In VyagresanaSamhita, it is mentioned to use *Manjishthadi* as a content of Kalyana ghritam in Jwara (663/60), Manjishthadi Ghritam in Jwara (768/69), Angarakam Taila (780/70) in Jwara, Mahamanjishthadi Kashaya in Kshudratara (91/625), Nava Kashaya (87/625), MahabhallatakAvaleha Taila (154/631), in Kushtha as a content of Manjishthadi Taila (66/684) and in Mukharoga as a content of Lakshadi Taila (113/712).

Nighantu
Bhavaprakasha Nighantu has mentioned Manjistha in Haritkyadi varga and mention its uses in diseases like Vrana, Prameha, Kushtha, Visha, Shotha, Atisara and Akshiroga.

Dhanvantari Nighantu has mentioned Manjistha in Guduchtadi varga and mentioned its uses in Vrana, Prameha, Kushtha, Visha, Shotha, Atisara and Akshiroga.

Raj Nighantu has mentioned Manjistha in Pippalyadi varga and mentioned its uses in Prameha, Kushtha, Visha, Jwara, Shotha and Atisara.

Kaiyadeva Nighantu has mentioned Manjistha in Aushadhi varga and mentioned its uses in Vrana, Prameha, Kushtha, Visha, Shotha, Atisara and Akshiroga.

Shaligram Nighantu has mentioned Manjistha in Guduchyadi varga and mentioned its uses in Vrana, Prameha, Kushtha, Visha, Shotha, Atisara and Akshiroga.

Soghala Nighantu has mentioned Manjistha in Ashtha Varga whereas Nighantu Adarsha and Nighantu Sangraha has mentioned Manjistha in Manjisthadi Varga.

Synonyms:
- Manjistha - It has pleasant color, provides good color, appears very beautiful.
- Vikasa – Expresses too long distance.
- Jingi – Express all over body.
- Samanga – It spreads in all direction.
- Kalameshi – It fight against black color.
- Bhandiri – Provides good color and complexion.
- Bhandi – Provides good color and complexion.
- Madukaparni – Leaf is similar to frog shape.
- Yogavavalli – Extensive climber having long joined stem.
- Vastrarangi – Used as fabric coloring agent.
- Raktangi – Whole plant is red.
- Hempushpa - It has golden color flowers.
- Chitrarpani – Leaves are arranged in whorl of four.
- Aruna – It has reddish stem.
- Rangagi – Red colored creeper.
- Vastrabhoshana – Roots are used to color the cloths.
- Jwarahanta – One which destroys Jwara.
- Tamramoola – Roots are coppery red.
- Tamra – Coppery red creeper.
- Chaitrita – Plant has beautiful morphology.
- Lohitalata – Red colored creeper.
- Rasayani – It alleviates Tridoshas and helps to maintain rasadi dhatus.

Vernacular names:

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<tr>
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Types:

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Pharmacodynamics:
- **Rasa**: Madhura, Tikta, Katu
- **Veerya**: Ushna
- **Vipaka**: Katu
- **Guna**: Guru, Ushna

Scientific Classification:
- **Kingdom**: Plantae
- **Division**: Dicotyledon
- **Class**: Gamopetalac
- **Series**: Inferae
- **Order**: Rubiales
- **Family**: Rubiaceae
- **Genus**: Rubia
- **Species**: Cordifolia

Distribution:
It is commonly occurring throughout the hilly regions in India ascending to 8000 ft. altitude, frequently in Himalayan region of country from North West frontier eastwards on Himalaya and south to Ceylon and the Malay perinsula also in China, Japan, Java & in tropical Africa. Plant is generally found in Uttar Pradesh and Sub Himalayan tracts of Rohilkhand and North Oudh and other similar areas.

Botanical Description:
Perrineal, herbaceous climbing.

- **Roots**: Very long, cylindrical, Hexuese, with thin, red bark.
- **Stem**: Often many yards long rough grooved, becoming slightly woody at base, Bark white branches scendent by means of numerous divericate or deffexed branches and petioles quadrangular, sometimes pricky on the angles, glabrous shinning.
- **Leaves**: 3.8-9 by 1.6-3.5 cms, In works longer (and with longer petioles than the other) ovate, acute. The lower leaves are larger than the upper. All scabrous above on the nerves beneath and on margins with minute white prickles, base rounded or slightly corded, the ba of upper leaves is sometimes acute, all 5 rarely 7 nerves from the base. Petioles are triangular with many sharp recurved pricles on the edgesoften defixxed.
- **Flowers**: Flowers are in terminalpanicledglabrous cymes, branches trichotomous spreading pacts, ovate , acute, leavy calyx 0.85 mm long tube glosbre glabrous limb. Corolla is greenish devided nearly to base, tube seareoly any lobes, ovate secute 3 mm long, styles 2 stigmas globose.
Manjistha

Chemical composition:
Rubia cordifolia roots contain the coloring matter, which is a mixture of purpurin and manjisthin. Purpurin is the major coloring principle while Manjishtin is an orange dye which occurs in the form of its glucosides.

The roots consist of several anthraquinone derivatives viz. 1-acetoxy-6-hydroxy-2-methylanthraquinone, rhamnollucoside, 1,4-dihydroxy-2-carbomethoxy anthraquinone, 1-hydroxy-2-carboxy-3-methoxyxanthraquinone along with many other such derivatives. The roots are reported to contain pentacyclic triterpenic compounds such as rubiateriod, rubicoumaric acid, and rubifolic acid. Cyclic hexapeptide derivatives RA-I, RA-III, and RA-IV have also been isolated and characterized from roots of Indian Meddhar.

Medicinal Uses:
Raktaprasdana, Raktashodhana, Varnya, Dipana, Pachana, krimighna, kaphaghna, artavajanana, stanyashodhana, vishaghna, jwaraghna, rasayana, shothaghna, vranaropana, mutrakara, atisaraghna, arshoghna, pramehaghna, kushthaghna, gharbhashaya uttejaka.

Doses:
Root Powder: 1-3 Grams
Decoction: 60-120 ML

Pharmacological studies:
- Antibacterial activity of ethanolic extract of Rubia cordifolia evaluated against ESBL (Extended Spectrum Beta-Lactamase) producing urinary E.coli infection. Isolation of different E.coli strains done from urine samples of patients and all the isolates tested for different antibiotics and screened for their ESBL production. Total 7 different ESBL producing E.coli obtained and tested against the ethanolic extract of Rubia cordifolia using Kirby Bauer method and found to be inhibited variably by the extract. The plant can be a potential candidate as alternative antibacterial agent to combat drug resistant organisms.
- Methanolic extract of Rubia cordifolia showing ameliorative effect in N-nitrosodiethylamine induced hepatocellular carcinoma in rats. Mitochondrial enzymes and respiratory chain enzymes, which decreased in N-nitrosodiethylamine treated rats, increased significantly in Rubia cordifolia treated rats. The levels of hydroxyl radicals and lipid peroxidation also decreased. Histological analysis of liver confirmed the prevention of pathological changes caused by N-nitrosodiethylamine, which suggest that Rubia cordifolia may be developed as an effective chemotherapeutic agent.
- Psoriasis is skin disorder characterized by hyperproliferation and aberrant differentiation of epidermal keratinocytes. Ethyl acetate (EA) fraction of Radix Rubiae inhibits cell growth and promotes terminal differentiation in cultured human keratinocytes which strongly suggest its antipsoriatic activity. Evaluation is done by cornified envelope (CE) formation assay showed that EA fraction of Radix Rubiae significantly accentuated the CE formation, a well-recognized marker of terminal differentiation, in cultured HEK and HaCaT cells in a dose and time dependent manner.
- Methanol extract of Rubia cordifolia induced typical apoptosis in HEP-2 (Human laryngeal carcinoma) cell line through the elevation of reactive oxygen species generation. Inhibition of cell proliferation and lactate dehydrogenase release increased in a time and dose-dependent manner. Apoptotic effect of Rubia cordifolia extract (30 mg/ml) on HEP-2 cells confirmed by fluorescent and transmission electron microscopy based on morphological and ultrastructural changes.
- Alizarin, a natural hydroxyanthraquinone derived from root of Rubia cordifolia evaluated as an osteotropic drug for treatment of bone tumors because of its high affinity to bone. Antitumor activity of alizarin investigated on human cell lines representative for bone metastases from prostate cancer, breast cancer and for three human osteosarcoma cell lines. Alizarin induced a dose-dependent inhibition of cell growth over time in osteosarcoma and breast cancer cell lines, whereas in prostate cancer cell line, it appeared to be cytotoxic only at higher concentration. Studies found that alizarin acted through the inhibition of ERK phosphorylation and cell cycle arrest in the S phase.
Conclusions:

On comprehensive review of *Manjistha* it is found that *Manjistha* is described in Vedas, Brihatrayies & Laghutraies. Various synonyms like *Manjistha*, *Vikasa*, *Samanga*, *Bhandi*, *Bhandiri*, *Kalamesh* are described in various Nigantus. *Manjistha* (*Rubia cordifolia*) belongs to family *Rubiaceae* and commonly known as Indian Madder. It is used in traditional Ayurvedic medicine as *Raktaprasdana*, *Raktashodhana*, *Varnya*, *Dipana*, *Pachana*, *Krimighna*, *Khaphaghna*, *Artavajanana*, *Stanyashodhana*, *Vishaghna*, *Jwaraghna*, *Rasayana*, *Shothaghna*, *Vranaropana*, *Mutrakara*, *Arshoghnaha*, *Pramehaghna*, *Kushthaghnaha*, *Gharbhashayahattejaka*.


References: