

Comparative Assessment of Physico-Chemical And Phyto-Chemical Parameters of Wild And Cultivated Chitraka (Plumbago Zeylanica Linn.)

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Abstract--- *Background-* Major supply source of plant Chitraka (*Plumbago zeylanica* Linn.) is Wild. This plant grows slowly and it takes long time until the roots become mature enough for medicine preparation. As mostly root of Chitraka is used in Ayurvedic medicine, it needs to be uprooted and so it becomes impossible to maintain the sustainability of a plant. So, it needs to examine, the potency of leaves and stem of the plant as compare to its root so that the plant can be saved and one can also get the same therapeutic efficacy. Another important point of the study is related to the use of the cultivated source of Chitraka instead of the wild source because a large scale of the harvest is getting removed from the forest through illegal route and so that this important plant can be saved from extinction. **Aim and objective -** To study the comparative physico-chemical and phyto-chemical parameters of root, stem and leaves of the wild and the cultivated source of Chitraka. **Material and Method –** For this prospective study Chitraka plants will be collected from field and Herbal garden, MGACH&RC, Salod (H), Wardha and conclusion will be drawn by studying HPTLC to analyze the level of Plumbagin in root, stem and leaves of wild and cultivated source of plant by comparing with the standard marker. **Results-** On the basis of Physicochemical and Phytochemical analysis, the phytoconstituent (Plumbagin) concentration in leaves, stem and root will be concluded. **Conclusion-** The result will depict either we can use the leaves and stem of Chitraka instead of root and similarly the cultivated source of the plant instead of the wild source. The positive result will help to preserve and save the plant Chitraka.

Keywords--- Chitraka, *Plumbago zeylanica*, Wild, cultivated, HPTLC

I INTRODUCTION –

Chitraka is one of the frequently used medicinal plants in Ayurveda has been included in *Agryardravya*ⁱ by Acharya Charaka and considered as *Rasayana*ⁱⁱ by Acharya Sushrutⁱⁱⁱ and Acharya Vagbhata^{iv}. Many classics have

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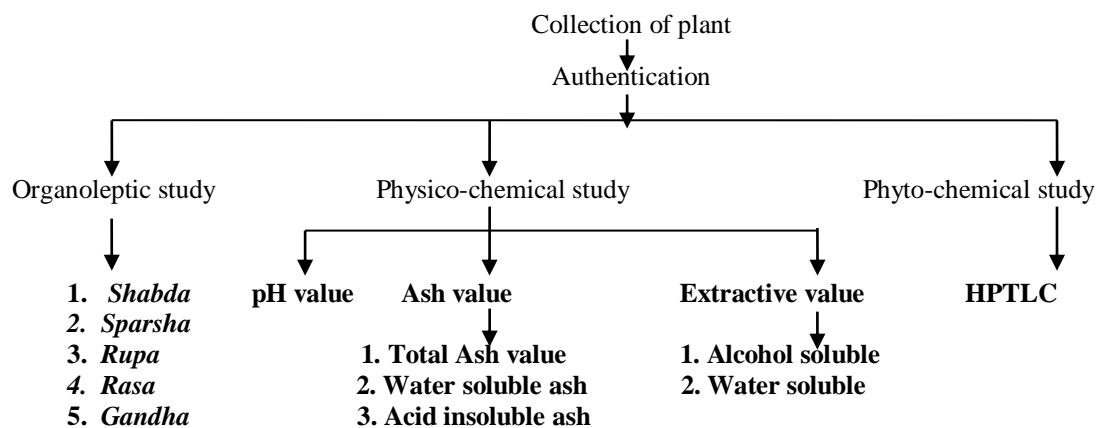
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denoted Chitraka as Agni^{iv,vi} (Fire plant^{vii}) due to its ushna, tikshna properties. Its synonym is “Chita”^{viii} in correlation with the leopard who catches its prey with swiftness, as does Chitraka, having the ability to quickly cure the diseases. It is also called Doctorbush^{ix}, as because it is used in treating many diseases like Anorexia, Indigestion, Liver disorders, Hemorrhoid, Worm infestation, Cough, Cold, Pregnancy-related disorder, etc^x and it is also used to prepare many ayurvedic formulations like Chitrakaadivati, Chitrakaharitaki^{xi,xii}, Chitrakaadilauha, Chitrakaadi tail, Chitrakadighrit, Yakritpliharilauha, Lauhasav^{xiii}, etc.

This plant is perennial shrubs with roots are stout, long, brittle, blackish red, white inside with an offensive bitter smell. This plant grows slowly and it takes a long time until the roots become mature enough for medicine preparation. Mostly semi-ripe cuttings and seed cultivation are used for the propagation of this plant. These conventional approaches for proliferation are troublesome and less effective. Nowadays the Tissue culture technique has been adopted for the micro propagation^{xiv,xv} of *Plumbago zeylanica* Linn., but it is very costly. Usually, *Chitraka* root or root bark is used in the ayurvedic formulations^{xvi}. So that the demand of *Chitraka* root is increasing. In the market, this plant has of medicinal, commercial and economic importance. But due to continued overexploitation of forest, extinction of many plant species from the flora and growing demand for herbal medicine worldwide has led to increasing the pressure on the demand side. So there is a need to study regarding the conservation and cultivation of plants and to search for alternative options.

II MATERIAL AND METHODS –

Chitraka plant will be collected from the field and Herbal garden, MGACH&RC, Salod(H), Wardha and authenticate by FRLHT (Foundation for Revitalization of Local Health Traditions), Bengaluru. The root, stem and leaves from the field (wild) and cultivated samples coded as-WR, WS, WL and CR, CS, CL respectively. Physicochemical, Phytochemical studies of these samples will be conducted at Central Research lab, DMIMS (DU), Wardha.



Assessment – Physicochemical parameters will compare with the values from API. % of Plumbagin of root, stem and leaves of *Chitraka* (*Plumbago zeylanica* Linn.) will be assessed with standard plumbagin marker by HPTLC.

III RESULTS-

Based on Physicochemical and Phytochemical analysis, the phytoconstituent (Plumbagin) concentration from leaves, stem and root will be concluded. The result will depict either we can use the leaves and stem of *Chitraka* instead of root.

IV DISCUSSION –

According to NMPB (National Medicinal Plant Board), there are many of the wild medicinal plant species are facing serious threat of extinction due to indiscriminate harvesting, even the supply of cultivated species is not able to match the rising demand, thereby resulting to unethical practice of adulteration that has compromised the authenticity of herbal medicine to serious extent. To maintain the standard of ayurvedic medicine, it requires good qualities of medicinal plants. So there is a need for conservation, cultivation, and propagation of plants and to search for alternative sources. *Chitraka* is an important medicinal plant in ayurvedic medicine. So mg % of Plumbagin of root, stem and leaves of *Chitraka (Plumbago zeylanica* Linn.) will be analyze with standard plumbagin marker by HPTLC to assess the potency of leaves and stem of the plant as compare to its root so that the plant can be saved and at the same time one can also get the same therapeutic result as earlier.

V CONCLUSION-

The Inference will be drawn using results, that whether we can use the leaves and stem of *Chitraka* instead of its root and similarly cultivated source of the plant instead of the wild source. The positive result will help to preserve and save the plant *Chitraka* from extinction.

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