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Review Article

A CRITICAL ANALYSIS OF MORPHOLOGICAL CHARACTERS OF PLANT SPECIES TAKEN AS *RUDANTI*

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ABSTRACT

Ayurveda was introduced as a science of prevention and cure of various ailments. *Aacharya* attained this profound knowledge through hit and trial methods and experiments. They used various herbs for this purpose. Medicinal plants are the essence of Ayurveda and Ayurvedic treatments. Keeping in mind the characteristics of plant drugs nomenclature was done. Later researchers took classical references about morphology, pharmacology and synonyms as base for identification of plants. This article will bring in light the morphological characters of various plant species that comes in approximation to one of the most controversial plant i.e. *Rudanti*. This paper is an attempt to eliminate state of confusion on *Rudanti* and to establish new plant species that fulfill the classical morphological identification criteria as mentioned in *Raj Nighantu*. This article also encompasses the folklore knowledge of the plant species established through evaluation of modern texts. This information will further validate the target species. Hence this is concluded that *Capparis moonii* and *Cressa cretica* taken in the name of *Rudanti* are not classical *Rudanti* as they do not resemble morphological characters. *Astragalus* and *Cicer* species that resemble *Rudanti* classical description should be taken. This can further be revalidated by preclinical/clinical trials.

KEYWORDS: *Astragalus candolleanus, Capparis moonii, Cicer species, Cressa cretica,* Morphological characters, *Rudanti.*

INTRODUCTION

In our lexicons various synonyms and morphological characters are mentioned. These are of great help in identifying drugs. Morphological characters are the first to identify in any plant. Selection of authentic drugs for medicine manufacturing can be done only after correct plant identification. This was observed by *Aacharya* and they mentioned various identification characters reciting about morphology, pharmacology etc. They after observation explored plants pharmacology and morphological characters and took them as base for identifying various plants. Later botanist after strenuous work has discovered modern criteria of identification which includes class, sub-class, genus, family, species etc. By looking at the morphology plants are identified now and then. Morphology of plants includes morphological characters of leaves, stems, flowers, fruits, roots etc. in classics it is illustrated in the form of synonyms or basonyms. Later *Vaidyas* identified numerous plants by comparing classical and modern morphological characteristics. But due to ignorance or lack of research in the field of identification many plants could not be correctly botanically identified. This led to controversies in plants. One such controversial plant is *Rudanti*. *Raj Nighantu* illustrated morphology, pharmacology and synonyms of *Rudanti* for the first time. Modern researchers identified *Rudanti* as *Cressa cretica* and *Capparis moonii* but none of these fulfill the classical identification criteria.

MATERIALS & METHODS

1. Analyzing and compiling information from classical texts, research papers/articles and modern literature.
2. Comparison of morphological and pharmacological characters described in classical texts with species that bear resemblance in total/ approximation to classical *Rudanti.*

RESULT & DISCUSSION

Rudanti first came into reference in *Shodhal Nighantu* as *Vriddhapalitake.*[1] Detailed description of morphology, pharmacology, synonyms was first mentioned in *Raj Nighantu.* Morphological characters mentioned as leaves resembling that of chickpea, has sour taste, small shrub, dew drops dripping from shrub during winter season[2]. From various sources data is collected on morphological characters of plant

species comes in approximation or taken in the name of *Rudanti* i.e. *Cressa cretica* and *Capparis moonii*.

***Cressa cretica* morphology:** Small dwarf shrub up to 38cm height. Start to begin in the beginning of June. Flowering and fruiting is from the end of June to the end of August. During September, the plant gradually withers. It is an erect dwarf shrub, stem slender, much branched, very hairy. Leaves are numerous, sub- sessile, ovate, acute densely silky-hairy. Flowers are white or pink; appear usually in small clusters in the axils of the upper leaves, pedicels very short. Bracts two linear, hairy. Calyx densely silky sepals 3mm long, elliptic, obtuse ciliate. Corolla lobes oblong, sub obtuse. Capsules 4.5mm long, ovoid pointed and pubescent at the apex, seeds usually solitary. [3]

Folklore uses: it is considered to be exhilarating, and to purify the blood and give tone to the system. It is prescribed in decoction as a tonic, and is believed to possess expectorant and anti bilious properties. It is used as diuretic and to disperse swelling and phlegmatic tumors. [4]

It possesses antibacterial, antifungal, antitussive, testicular functions and antifertility effects. It is comprised of flavonoids, heavy metals, lead, copper, zinc, thus, commencing it one of the important medicinal plants.[5]

***Caparris moonii* morphology:** Leaves are ovate, lanceolate, obtuse or shortly acuminate, petiolate, coriaceous, shining above, paler beneath; stilpular thorns are stout, short and recurved. Flowers are large, white in 6-12 flowered, terminal corymbs; sepals are 4, orbicular, imbricate, and tomentose outside, glabrous inside; petals are white, pubescent outside, hairy within; stamens are numerous, gynophores are long. Fruits are large, globose and long stalked; seeds are many, size of a bean.

Folklore uses: The tribals of North-West Mysore forests are reported to use powdered fruits locally for the treatment of septic wounds. The fruits are also used in weakness and cough and are potent anti-tubercular agent. [6]

Figure 1: *Capparis moonii* fruit available in the name of *Rudanti* in market

Few other plant species which worth consideration are Astragalus species and *Cicer* species. There morphological characters are as follows:

***Astragalus candolleanus* morphology:** Generally considered as the largest genus of vascular plant with an estimated 2500-3000 species. Astragalus plants are annuals, herbaceous perennials or shrubs, leaves are pari or imparipinnate; stipules are conspicuous, free or adnate to the petiole, herbaceous or glumaceous; inflorescence is sessile or pedunculate spike or raceme, flowers are sessile in upper leaf axils, rarely solitary; calyx is campanulate or tubular or deeply lobed; sometimes glabrous or hairy; hairs are simple or biarmous; corolla maybe white, pink, purple or yellow; wings and keel usually shorter than standard; stamens are diadelphous; fruit variously shaped legume; seeds are compressed, globular or ovoid.[7]

Fruiting and flowering June- September. It was noticed that Astragalus leaves resemble that of chickpea.

Folklore uses: the root powder or decoction used internally in tuberculosis, skin diseases, cough and also for purifying blood. The drug is recommended for clinical and pharmacological screening. The whole plant decoction is used in diabetes also. There is a specific demand for it amongst the *Sadhus* for its curative properties in tuberculosis condition. It is used as aphrodisiac, respiratory disorder.[8]

Figure 2: *Astragalus candolleanus* showing its morphological characteristics of leaves and flowers

Cicer species morphology: It is an annual herb, 1-2 ft high, stem is erect, branched, hairy, herbaceous, glandular, green, solid, leaves are pari-pinnate or pinnately compound, having tendril at the apex, small petiole, compound and bipinnate stipulate. Leaflets 6-15 paired, obovate, wedge shaped toothed in upper half. Flowers born singly on stalks. Glandular, hairy, light purple in colour, zygomorphic. Flowers are of vexillary aestivation, papillionaceous corolla. Flowering is from June-July.

Pod- oblong, small two-three seeded.

Root- tap root, stout, deeply penetrating the soil, carrying many laterals on the upper half.

Folklore uses: Through survey it was accounted that whole plant has been consumed by local communities and leaves possess aphrodisiac and rejuvenating properties.

Figure 3: showing morphological characteristics of *Cicer microphyllum*

Table 1: Shows The Analysis of Morphological Characters

Rudanti (Ra. Ni)	***Cressa cretica***	***Capparis moonii***	***Astragalus candolleanus***	***Cicer species***
Chanakpatra	+	-	++	++
Kshup	+	+	+	+
Patra amla	-	-	-	++
Kshishirejalvindoonam	++	-	++	++

It is evident from the aforesaid table that *Cressa cretica* has four points, *Capparis moonii* has one point, *Astragalus candolleanus* has five points and *Cicer* species has seven points which shows that *Cicer* species shows maximum morphological approximation to classical *Rudanti*.

Table 2: Shows The Folklore Data Compared with Classical Pharmacological Properties

***Rudanti* (Ra. Ni)**	***Cressa cretica***	***Capparis moonii***	***Astragalus candolleanus***	***Cicer species***
Kshay vinashana	+	++	++	?
Krimi vinashana	?	?	+	?
Raktapitta nashan	?	?	?	?
Kapha shwas nashana	+	+	?	++
Meha hari	?	?	++	?
Rasayani	?	?	?	++

Ra. Ni – Raj Nighantu
(++) significantly present
(+) Present
(-)Absent
(?) Not known

Aforesaid table depicts the pharmacological properties of the four target species. According to this *Cressa cretica* and *Capparis moonii* has *Kshay vinashan* action whereas *Cressa cretica* possess *Kapha shwas nashan* (anti-phlegmatic action), *Astragalus candolleanus* posses *Kshay vinashan, Krimi vinashan* (anti-helmenthic) and *Meha hari* (anti-diabetic action) and *Cicer* species *Kapha shwas nashan* (anti-phlegmatic) and *Rasayana* (rejuvenating and anti-ageing property). *Astragalus candolleanus* seems more pharmacologically appropriate as classical *Rudanti*.

CONCLUSION

This article is an attempt of author to eliminate state of controversy related to *Rudanti* by re-evaluating classics and texts available. Morphological data available in classics and various texts are being compared. Literal data collected includes four plant species *Astragalus candolleanus, Capparis moonii,* Cicer species and *Cressa cretica*. After literary review it has been observed that *Capparis moonii* and *Cressa cretica* do not resemble classical *Rudanti* morphologically rather *Astragalus* and *Cicer* species comes in approximation. Author has made an attempt to throw light upon the morphological and pharmacological properties of *Rudanti* and also plant species that comes in approximation to classical *Rudanti*. Properties of the four plant species are accounted, compared and presented in tabular form. This can further be validated through pre/clinical trial.

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