IDENTIFICATION OF DIFFERENT VARIETIES OF PUNARNAVA MENTIONED IN THE AYURVEDIC LITERATURE

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ABSTRACT

Punarnava is one of controversial drug in Ayurveda. Nighantus have created a lot of confusion in the identification of different varieties of Punarnava mentioned in the Ayurvedic texts. Majority of the Nighantu used Varshabhu as the synonym of Punarnava. But later studies have proved that the two plants are totally different. In majority of Nighantus two varieties of Punarnava are found i.e., Sveta and Rakta. Most of the people think Boerhaavia diffusa to be the red variety and Trianthema portulacastrum to be the white variety. But this is not correct. There are three plants which lie under this two category i.e., Boerhaavia diffusa, Boerhaavia verticillata and Trianthema portulacastrum. On the basis of colour White and Red variety are differentiated. But with the colour what is to be taken whether the colour of the stem or the colour of the flowers. Punarnava is one of the very important anti inflammatory medicinal herb. Nowadays it is used for Mutraala as well as for its Rasayana property. Therefore it is need for the identification of correct plant or the species to get the best therapeutic effect of the plant. This article is to find out the correct species, which one is to be taken as Sveta and which one to be taken as Rakta Punarnava.

KEYWORDS: Punarnava, Varshabhu, Boerhaavia diffusa, Boerhaavia verticillata and Trianthema portulacastrum.

INTRODUCTION

Punarnava is found as a weed all across India, especially abundant during the rains. Though modern research has proved that it is diuretic, in major Ayurvedic texts it is not indicated for Mutraala purpose. In Ayurvedic texts it is used as a Rasayana drug, as it is a good rejuvenating agent. It regenerates repeatedly after cutting. It is praised by physicians because of very effective therapeutic utility in different conditions. Since long it has been used by tribals for various diseases. It is indicated in treatment of number of ailments in Ayurveda’s prime text i.e Charak Samhita.

Punarnava is the word derived from two different words “Punar” which means “again” and “Nava” which means “new”. The plant dies of in a year and with the same root a new plant arises next year. Due to its Rasayana and Raktavardhak property it renews the body system.

Punarnava in Different Ayurvedic Texts:

Charak Samhita: Charak has kept Punarnava in Svedopaga, Anuvasnopaga, Kasahara, and Vayavasthapa mahakasaya. Except in the context of Vayavasthapa group, Charak quoted two types of Punarnava i.e in Kasahara, Anuvasnopaga and Svedopaga mahakasaya. He also described Punarnava in Sakavarga with the synonym Kathilla2.

Sushruta Samhita: Sushruta has kept Punarnava in Vidarigandhadi gana. Sushruta included both Punarnava and Varshabhu in the Sakavarga3.

Dhanvantri Nighantu: Dhanvantri Nighantu mentioned two types of Punarnava. First one is Punarnava while the other one is Krura. He gave Vishakha, Shivatika, Vrichir, Kshudra Varshabhu, Dirghapatra and Kathillaka as synonym of Punarnava, While Sadyomandalpatraka, Varshketu and Maha Varshabhu as synonym of Krura4.

Kaideva Nighantu: Kaideva Nighantu also mentioned two types of Punarnava. First one is Punarnava and the other one is Kathillaka. The synonyms of Punarnava are Punarhbu, Sada, Mandalpatraka, Svetamula, Varshabhu, Raktapatraka, Sophaghi, Jagteila, Sadyovishoshi and Dirghapatraka. The synonyms of Kathillaka are Khudra Varshabhu, Raktapuspa, Shivatika, Varshaketu, Krurak and Raktavrintaka5.

Shodhal Nighantu: Shodhal mentioned three varieties of Punarnava, Sveta Punarnava, Vaishakha and Raktta Punarnava. He gave Varshabhu as synonym of Rakta Punarnava and Kshudra Varshabhu as synonym of Sveta Punarnava6.

Madanpal Nighantu: Here also two variety of Punarnava has been mentioned, Sveta and Raktta. Sveta Punarnava is said to have White root and large leaves. While Rakta Punarnava is said to have root part and flower both red in colour7.

Raj Nighantu: Raj Nighantu mentioned three types of Punarnava; Sveta, Rakta and Neela. The synonyms of Sveta Punarnava are Vishakha, Kathilla, Sashivatika, Prithvi, Sivarshabhu, Dirghapatra and Kathillaka. The synonyms of Rakta Punarnava are Krura, Mandalpatraka, Raktakanda, Varshketu, Lohita, Raktapatraka, Vaishakhi, Rakta Varshabhu, Sophaghi, Raktaapuspika, Vikswara, Vishaghi, Pravrishenya and Sarini. The synonyms of Neel Punarnava

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are Neela, Syama, Neel, Krishnakhya, Neel Varshabhu and Neelani.

**Bhavprakash Nighantu:** In Bhavprakash Nighantu two variety of Punarnava has been mentioned, Sveta and Rakta. The synonyms of Sveta Punarnava are Svetamula, Sothaghni and Dirghapatrika. While the synonyms of Rakta Punarnava are Raktaapuspa, Shilatika, Sothaghni, Kshudra Varshabhu, Varshketu and Kathillaka.

**Means of Different Synonyms of Punarnava**
- **Punarnava, Varsaketu, Varshabhu:** It is perennial and regenerates in rainy season.
- **Vishakha:** It is a spreading herb with extensive branches.
- **Mandalapatrika:** The leaves are nearly ovate.
- **Rakta Kaand:** The stems are red in colour.
- **Raktaapuspika:** It has red flower.
- **Svetamula:** The root is white in colour.
- **Kathillaka, Shivatika:** It is a very useful drug.
- **Sothaghni, Sadyovisoshi:** It is used particularly in oedema.
- **Sarini:** It has a diuretic action.

**Ayurvedic properties of Punarnava**
- **Rasa:** Madhur, Tikta, Kasaya
- **Guna:** Laghu, Ruksa
- **Veerya:** Ushna
- **Vipaka:** Katu

Bhavprakash quoted Rakta Punarnava as Seeta Veerya dravya.

**Therapeutic uses of Punarnava and Sveta Punarnava**

Sotha- Ghee prepared with the decoction and paste of Punarnava is given.
- **Ashmari:** Milk cooked with Haritakyadi or Punarnava should be taken.
- **Gulma:** Root of Punarnava cooked with rice removes pain of Gulma immediately.
- **Nidranasa:** Decotion of Punarnava is very useful in Nidranasa.
- **Alarka Visa:** Sveta Punarnava is given with Dhatura fruits.
- **Plihodara:** Sveta Punarnava root is pounded with rice water and given orally.
- **Vidradhi:** Roots of Sveta Punarnava and Varun is used for Apakova Vidradhi.
- **Vatakantaka:** Oil cooked with root of Sveta Punarnava removes Vatakantaka by massage in the feet.

**Morphology of Rakta Punarnava (Boerhaavia diffusa Linn.).**

- **Root:** Roots are large and fusiform.
- **Stems:** Prostate or ascending reaching 0.6-0.9 m long, divaricately branched, slender, cylindric, thickened at the nodes, minutely pubescent or nearly glabrous, often purplish.
- **Leaves:** Leaves are present at each node in unequal pairs, the larger 2.5-3.8 cm, while the smaller 1.3-2 cm long, broadly ovate or suborbicular, usually white and minute scales beneath. Base is rounded or subcordate.

**Flowers:** Flowers very small, shortly stalked or nearly sessile, 4-10 together, in smalls arranged in slender long stalked corymbose. Stemens 2-3 slightly exerted.

**Fruit:** Fruits are 3 mm long, clavate, rounded, broadly and bluntly ribbed, very glandular.

**Morphology of Sveta Punarnava (Boerhaavia verticillata Poir.).**

The species Boerhaavia verticillata display quite similar morphological features with Boerhaavia diffusa. The roots of Boerhaavia diffusa are cylindrical, creamy white in colour, very thin with a smooth surface and many hairy secondary rootlets.

**Morphology of Varshabhu (Trianthema portulacastrum Linn.).**

This is a diffuse prostrate glabrous herb seen mostly in rainy season. Two forms of Trianthema portulacastrum are reported to occur in this species. A red coloured form in which the stem, leaf-margins and flowers are red; and a green coloured form which has green colored stem and white flowers.

**Roots:** Thin, slender, tapering and tortuous, with lateral branching fibrous root, light yellow externally, creamish white internally, fractures fibrous.

**Stems:** Stems are white or purplish.

**Leaves:** Leaves are opposite and unequally paired.

**Flowers:** Flowers are solitary, white or pinkish.

**Fruit:** Capsule, 1 seeded, seeds are reniform and black.

In the figure 1, the flowers of both Varshabhu and Rakta Punarnava are shown. In Varshabhu the flowers are sessile i.e lack pedicel (flower stalk), while pedicel is seen in Rakta Punarnava.

Figure 1. (a) Varshabhu; (b) Rakta Punarnava; (c) Varshabhu having sessile Flowers
Microscopic Characteristics of Different varieties of Punarnava

In Boerhaavia diffusa, the cork is well developed and stratified. The parenchymatous cortical cells consist of crystals of calcium oxalate, brownish matter and starch grains. The phloem in the centre normally degrades to form a cavity.

In Boerhaavia verticillata, the cork is not well-developed and not stratified. No cavity is present in the centre due to the presence of xylem elements. The most striking feature in the central region of the root is the presence of four xylem bundles arranged perpendicular to each other in the form of a ‘X’-shaped cross.

In Trianthema portulacastrum, the cork is not well-developed and not stratified. The parenchymatous cortical cells consist of crystals of calcium oxalate, brownish matter and starch grains. No cavity is present in the centre due to the presence of xylem elements and absence of phloem.

Adulteration

The market samples of Rakta Punarnava (Boerhaavia diffusa Linn.) are often adulterated with Trianthema portulacastrum Linn.

CONCLUSION

Thus it is concluded that both Punarnava and Varshabhu has red and variety. The red variety of Punarnava i.e Rakta Punarnava should be taken as Boerhaavia diffusa. The white variety of Punarnava i.e., Sveta Punarnava should be taken as Boerhaavia verticillata. While red and white both variety of Varshabhu should be taken as Trianthema portulacastrum. Punarnava and Varshabhu can be easily differentiated from each other as in Varshabhu the flowers lack pedicel (flower stalk), while in Punarnava pedicel is present.

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