

IDENTIFICATION OF DIFFERENT VARIETIES OF *PUNARNAVA* MENTIONED IN THE AYURVEDIC LITERATURERupesh Kumar Sanger^{1*}, D.C. Singh², Suresh Chaubey³, Ritu Singh¹, Sarita Verma¹¹P.G. Scholar, ²Professor and Head, ³Associate Professor, Department of Dravyaguna, Rishikul Campus Haridwar, Uttarakhand Ayurved University, Uttarakhand, India.

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 *Mutrala* 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 it to be diuretic, in major Ayurvedic texts it is not indicated for *Mutrala* 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 system¹.

***Punarnava* in Different Ayurvedic Texts:**

Charak Samhita: *Charak* has kept *Punarnava* in *Svedopaga*, *Anuvasnopaga*, *Kasahara*, and *Vayasthapana mahakasaya*. Except in the context of *Vayasthapana* group, *Charak* quoted two types of *Punarnava* ie in *Kasahara*, *Anuvasnopaga* and *Svedopaga mahakasaya*. He also described *Punarnava* in *Sakavarga* with the synonym *Kathilla*².

Sushruta Samhita: *Sushruta* has kept *Punarnava* in *Vidarigandhadi gana*. *Sushruta* included both *Punarnava* and *Varshabhu* in the *Sakavarga*³.

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 *Krura*⁴.

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 *Punarbhu*, *Sada*, *Mandalpatraka*, *Svetamula*, *Vrischiva*, *Varshabhu*, *Raktapatraka*, *Sophaghni*, *Jatila*, *Sadyovishoshi* and *Dirghapatraka*. The synonyms of *Kathillaka* are *Khudra Varshabhu*, *Raktapuspa*, *Shivatika*, *Varshaketu*, *Krurak* and *Raktavrintaka*⁵.

Shodhal Nighantu: *Shodhal* mentioned three varieties of *Punarnava*, *Sveta Punarnava*, *Vaishakha* and *Rakta Punarnava*. He gave *Varshabhu* as synonym of *Rakta Punarnava* and *Kshudra Varshabhu* as synonym of *Sveta Punarnava*⁶.

Madanpal Nighantu: Here also two variety of *Punarnava* has been mentioned, *Sveta* and *Rakta*. *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*, *Sitvarshabhu*, *Dirghapatra* and *Kathillaka*. The synonyms of *Rakta Punarnava* are *Krura*, *Mandalpatraka*, *Raktakanda*, *Varshketu*, *Lohita*, *Raktapatrika*, *Vaishakhi*, *Rakta Varshabhu*, *Sophaghni*, *Raktapuspika*, *Vikswara*, *Vishaghni*, *Pravrisheya* and *Sarini*. The synonyms of *Neel Punarnava*

are *Neela*, *Syama*, *Neel*, *Krishnakhya*, *Neel Varshabhu* and *Neelani*⁸.

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 *Raktapuspa*, *Shilatika*, *Sothaghni*, *Kshudra Varshabhu*, *Varshketu* and *Kathillaka*⁹.

Meanings of Different Synonyms of *Punarnava*¹⁰

- ***Punarnava*, *Varsaketu*, *Varshabhu***- It is perennial and regenerates in rainy season.
- ***Vishakha***- It is a spreading herb with extensive branches.
- ***Mandalpatrika***- The leaves are nearly ovate.
- ***Rakta Kaand***- The stems are red in colour.
- ***Raktapuspika***- 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*¹¹

Rasa- Madhur, Tikta, Kasaya

Guna- Laghu, Ruksha

Veerya- Ushna

Vipaka- Katu

Bhavprakash quoted *Rakta Punarnava* as *Seeta Veerya dravya*.

Therapeutic uses of *Punarnava* and *Sveta Punarnava*^{12,13}

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***- Decoction of *Punarnava* is very useful in *Nidranasa*.
- ***Alarka Visa***- *Sveta Punarnava* is given with *Dhatu* fruits.
- ***Plihodara***- *Sveta Punarnava* root is pounded with rice water and given orally.
- ***Vidradhi***- Roots of *Sveta Punarnava* and *Varun* is used for *Apakva Vidradhi*.
- ***Vatakantaka***- Oil cooked with root of *Sveta Punarnava* removes *Vatakantaka* by massage in the feet.

Morphology of *Rakta Punarnava* (*Boerhaavia diffusa* Linn.)¹⁴

Root- Roots are large and fusiform.

Stems- Prostrate or ascending reaching 0.6- 0.9 m long, divaricately branched, slender, cylindrical, 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 1.3-2cm 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. Stems 2-3 slightly exerted.

Fruit- Fruits are 3mm long, clavate, rounded, broadly and bluntly 5 ribbed, very glandular.

Morphology of *Sveta Punarnava* (*Boerhaavia verticillata* Poir.)¹⁵

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.)^{16,17}

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 coloured stem and white flowers.

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

Stem- 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 Punarnava¹⁸

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.

Adulteration¹⁹

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.

REFERENCES

1. Prof. P.V. Sharma, *Dravyaguna Vijnana*, Vol II, Chaukhambha Bharati Academy, Edition: 2006, Pg. no. 630.4
2. Pt. Kasinatha Sastri, *Charak Samhita* of Agnivesa Part I, Chaukhambha Sanskrit Sansthan, Edition: 2006, Pg. no. 64, 66, 69, 382.
3. Kaviraja Ambikadutta Shastri, *Susruta Samhita* of Maharsi Susruta part I, Chaukhambha Sanskrit Sansthan, Edition: 2007, Pg. no. 141, 203.
4. Prof. P.V. Sharma, *Dhanvantari Nighantu*, Chaukhambha Orientalia, Edition: 2005, Pg. no. 64-65.

5. Prof. P.V. Sharma and Dr. Guru Prasad Sharma, *Kaideva Nighantu*, Chaukhambha Orientalia, Edition: 2006, Pg no. 139.
6. Prof. Gyanendra Pandey, *Shodhal Nighantu*, Chaukhambha Krishnadas Academy, Edition: 2009, Pg. no. 52.
7. Pandit Harihar Prasad Tripathi, *Madanpal Nighantu*, Chaukhambha Krishnadas Academy, Edition: 2009, Pg. no. 35.
8. Dr. Indradeva Tripathi, *Raj Nighantu* of Pandit Narhari, Chaukhambha Krishnadas Academy, Edition: 2006, Pg. no. 127-128.
9. Prof. K.C. Chuneekar, *Bhavaprakasa Nighantu* of Sri Bhavamisra, Chaukhambha Bharati Academy, Edition: 2013, Pg. no. 406-407.
10. Priya Vrat Sharma, *Namarupajnanam*, Chaukhambha Visvabharati, Edition: 2011, Pg. no. 131-132.
11. Dr. J.L.N. Sastry, *Dravyaguna Vijnana*, Chaukhambha Orientalia, Edition: 2005, Pg. no. 438.
12. Ibid. Pg. no. 439.
13. P.V. Sharma, *Classical uses of Medicinal Plants*, Chaukhambha Visvabharati, Edition: 2014, pg. no. 249-251.
14. K.R.Kirtikar and B.D.Basu, *Indian Medicinal Plants* Vol. III, International book distributors, Edition: 2005, Pg. no. 2045.
15. Bhavika R Vala et al., *Comparative Pharmacognostical and Phytochemical study of various species of the Controversial drug Punarnava*, International Journal of Pharmacy & Pharmaceutical Sciences, Vol. 8(1), 2016.
16. Dr. Gyanendra Pandey, *Dravyaguna Vigyana* (Materia medica-Veg) Vol. 3, Chaukhambha Krishnadas Academy, Edition: 2002, Pg. no. 187.
17. Dr. Bulusu sitaram, *Bhavaprakasa* of Bhavmisra, Chaukhambha Orientalia, Edition: 2006, Pg no. 291.
18. *Pandya et al.*, *Comparative Pharmacognostical and Phytochemical study of various species of the controversial drug Punarnava*, International Journal of Pharmacy and Pharmaceutical sciences, Vol. 8(1), 2016.
19. *Rao et al.*, *Ophthalmic uses of Boerhaavia diffusa (Punarnava): Review*, International Journal of Herbal medicine, IJHM 2016, 4(2): 05-09.

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