



# Critical Literary Review of Indian Herb *Punarnava (Boerhavia Diffusa)* And Its Medicinal Importance In *Ayurveda*

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## ABSTRACT

*Boerhavia diffusa* is one of the renowned medicinal plant in *Ayurveda* to subside a number of disease in *Ayurvedic* field. It is native plant of *Nyctaginaceae* Family. It is a plant of *Rasayana* category as per *Ayurveda*. It is reported to possess various pharmacological Actions like Expectorant, Immunomodulatory Effects, Antistress, Hypoglycaemic Activity, Anticonvulsant Activity, Anti-Inflammatory Activity, Diuretic, Cardiotonic, Antiviral, Laxative. In this article classical categorization, synonyms, *Rasapanchaka*, *Karma*, Morphology, Vernacular names and many qualities of *Punarnava* is described. It is a plant of uncountable benefits because of its chemical and therapeutic properties. This paper presented a comprehensive review of *B. diffusa* especially its pharmacological actions and therapeutic importance in *ayurveda* on the basis of ancient texts as well as modern literatures like *Charaka Samhita*, and *Sushruta Samhita*, *Vagbhata* and Various *Nighantus*.

**Keywords:** *Ayurveda*, *Punarnava*, *Boerhavia diffusa*, *Dravya*.

## Introduction

### *Punarnava* in *Brihatrayi*

#### *Charaka Samhita*:

In *Charak Samhita*, *Punarnava* is described in *Svedopaga Mahakashaya*, *Anuvasnopag Mahakashaya*, *Kasahar Mahakashaya* and *Vayasthapana Mahakashaya*. It is indicated for the treatment of several diseases as *Pandu*, *Shotha*, *Shopha*, *Hridroga*, *Kasa*, *Arsha*, *Vrana*, *Urahkshata*, *Shoola* etc. In these diseases *Punarnava* has been used in different compound formulation which are in form of *Churna*, *Ghrita*, *Taila*, *Avaleha* etc.

**Sushruta Samhita:**

In this *Samhita*, *Punarnava* is kept under *Vidarigandhadi Gana*, *Samshamniya Varga* & *Tikta Varga*; and in compound formulations for treatment of various diseases in form of *Taila*, *Ghruta Nasya*, *Lepa* etc.

**Ashtanga Hridayam:**

In *Ashtanga Hridaya*, *Punarnava* is described in *Madhyam Panchamula*; *Vagbhatta* has used the drug '*Punarnava*' in compound formulations for the treatment of various diseases. The drug has been used in the form of *Ghruta*, *Taila*, *Lepa*, *Vasti* etc.

**Description of *Punarnava* in *Charaka Samhita*****Table 1.** Showing Review of *Punarnava* in *Charaka Samhita*

<i>Adhayaya &amp; Shaloka</i>	Used as ingredient of
<b><i>Sutrasthana</i><sup>[1]</sup></b>	
2-12	<i>Asthapana Vasti Dravya</i>
4-22	<i>Svedopaga Mahakashaya</i>
4-26	<i>Anuvasnopag Mahakashaya</i>
4-36	<i>Kasahar Mahakashaya</i>
4-50	<i>Vayasthapana Mahakashaya</i>
<b><i>Vimanasthana</i><sup>[2]</sup></b>	
8-135	<i>Vaman Dravyakalpa Sangrah</i>
8-136	<i>Virechana Dravyakalpa Samgrah</i>
8-139	<i>Madhura Skandha</i>
<b><i>Chikitsasthana</i><sup>[3]</sup></b>	
1-43	<i>Prathama Brahmarasayana</i>
1-58	<i>Dvitiya Brahmarasayana</i>
1-64	<i>Chyavanprasha</i>
1-2/4	<i>Amalaka Ghruta</i>
1-2/12	<i>19-Baladi Rasayana Yoga</i>
1-4/6	<i>Indrohta rasayana Yoga</i>
2-1/26	<i>Brihaniya Gutika</i>
3-175	<i>Utsadana</i>
3-189	<i>Shaka (vegetable)</i>
3-267	<i>Agurvadi Taila</i>
7-125	<i>Kushtha Nashak Yoga</i>
8-79	<i>Pradeha</i>
8-170	<i>Rasna Ghruta</i>
10-26	<i>Kwatha</i>
11-36	<i>Amrita Grita</i>
11-56	<i>Dvitiya Sarpiguna</i>
11-66	<i>Chaturtha Sarpiguna</i>
12-22	<i>Kwatha</i>
12-23	<i>Kwatha</i>
12-25	<i>Kwatha</i>
12-34	<i>Punarnavaddharishta</i>
12-73	<i>Samanya Yoga</i>
13-109	<i>Parisheka</i>
16-93	<i>Punarnava Mandura</i>
16-119	<i>Vyoshaddha Ghruta</i>
18-127	<i>Kantakari Ghruta</i>
18-177	<i>Jivantyadi Leha</i>
23-53	<i>Kakandadi Yoga</i>

26-23	<i>Sthiradi Ghrita</i>
26-24	<i>Virechana Yoga</i>
26-46	<i>Mishraka Sneha</i>
26-63	<i>Punarnavadi Yoga</i>
26-70	<i>Karpasa Mutradi Yoga</i>
26-82	<i>Punarnavadi Taila</i>
26-170	<i>Mahamayura Ghrita</i>
29-61	<i>Jivaniya Ghrita</i>
29-64	<i>Jivaniya Ghrita</i>
29-73	<i>Jivakadi Mahasneha</i>
29-103	<i>Amritaddha Taila</i>
30-53	<i>Kashmaryadi Ghrita</i>
<b>Kalpasthan<sup>[4]</sup></b>	
4-16	<i>Dhamargava Yoga</i>
<b>Siddhithana<sup>[5]</sup></b>	
3-39	<i>Erand Muladi Niruha Basti</i>
3-65	<i>Punarnavadi Niruha Basti</i>
4-4	<i>Dashamuladi Anuvasana Taila</i>
9-8	<i>Uttara Vasti/Niruha Basti</i>
10/32	<i>Parishrava Nashaka Basti</i>
11/32	<i>Niruha Basti</i>
12/15-1	<i>Mustadi Yapana Basti</i>
12/15-2	<i>Yapana Basti</i>

### Description of Punarnava in Sushruta Samhita

Table 2. Showing Review of Punarnava in Sushruta Samhita

Adhayaya & Shaloka	Used as ingredient of
<b>Sutrasthan<sup>[6]</sup></b>	
38/4	<i>Vidarigandhadi gana</i>
39/7	<i>Sanshamniya Varga</i>
42/18	<i>Madhura Varga</i>
46/221	<i>Pippalyadi Dravya</i>
46/255	<i>Shaka Varga</i>
<b>Chikitsasthan<sup>[7]</sup></b>	
5/7	<i>Punarnavadi Lepa</i>
5/10	<i>Punarnava Kalka</i>
6/13	<i>Punarnava Mula</i>
7/11	<i>Kwatha</i>
12/15	<i>Dhanvantara Ghrita</i>
14/10	<i>Punarnava Kalka</i>
15/33	<i>Bala Taila</i>
18/45	<i>Lepa</i>
19/28	<i>Parisheka</i>
20/12	<i>Taila</i>
22/39	<i>Lepa</i>
23/12	<i>Anupana (Kwatha)</i>
25/32	<i>Saireyakadi Taila</i>
37/19	<i>Bhutikadi Taila (Anuvasanartha)</i>
38/106	<i>Mustadi Asthapana Vasti</i>
<b>Kalpasthan<sup>[8]</sup></b>	
1/61	<i>Lepa</i>
2/46	<i>Yavagu</i>
5/85	<i>Eksara Yoga</i>
7/23	<i>Swarasa</i>
7/24	<i>Ghrita</i>
7/52	<i>Unmatta Shawadi Dashta Chikitsa Yoga</i>
<b>Uttartantra<sup>[9]</sup></b>	

21/6	<i>Nadi Sveda</i>
24/32	<i>Baladitaila Nashya</i>
26/40	<i>Lepa</i>
31/3	<i>Sechana Karma</i>
39/202	<i>Dugdha Paka</i>
41/44	<i>Utsadana</i>
41/46	<i>Ghrita</i>
41/48	<i>Dvipanchmuli Ghrita</i>
42/47	<i>Vrishchivaddarishtha</i>
47/46	<i>Varshabhvyadi Peya</i>
51/23	<i>Subahadi Ghrita</i>
55/46	<i>Mulakadi Ghrita</i>
59/25	<i>Phalgvadi Yoga</i>

## Description of *Punarnava* in *Nighantus*

### 1. *Dhanvantri Nighantu* (10<sup>th</sup> A.D.):

In *Dhanvantari Nighantu*, *Punarnava* has been described under *Guduchyadi Varga*.

#### *Paryaya*<sup>[10]</sup>

*Punarnava*, *Vishakhah*, *Kathillah*, *Shivatika*, *Vrishchir*, *Kshudravarshabhu*, *Dirghapatrah*, *Kathillakah* are synonyms.

#### *Guna-Karma*<sup>[11]</sup>:

*Punarnava* has *Tikta Rasa*, *Ushna Virya*, *Ruksha Guna* and pacifies *Kapha Dosha*. It is useful in *Shopha*, *Pandu*, *Hridyaroga*, *Kasa*, *Urahkshata* and *Shoola*.

### 2. *Shodhala Nighantu* (12<sup>th</sup> A.D.):

*Acharya Sodhala* kept *Punarnava* under *Guduchyadi Varga*.

#### *Paryaya (Nama Sangraha)*<sup>[12]</sup>:

*Punarnava*, *Shophaghni*, *Viksa*, *Raktapushpika*, *Varshaketu*, *Varshabhu*, *Mahavarshabhu*, *Shivatika*, *Sarini* and *Pravrishyaayani* are synonyms.

#### *Guna-Karma (Guna Sangraha)*<sup>[13]</sup>:

Three types of *Punarnava* are *Bhedan*, *Ushna Virya* and *Rasayana*. It mitigates *Kapha* and *Vata*. It cures *Durnama* (haemorrhoids), *Vardhma*, *Shopha* and *Udara Roga*.

### 3. *Madanpala Nighantu* (14<sup>th</sup> A.D.):

This *Nighantu* is also known as "*Madana Vinoda*". *Madanpala* has kept this drug in *Abhayadi Varga*.

#### *Paryaya*<sup>[14]</sup> & *Guna-Karma*<sup>[15]</sup>:

*Punarnava*, *Aruna*, *Tikta*, *Raktapushpa*, *Kathillaka*, *Kruraka*, *Kshudravarshabhu*, *Varshaketu* and *Shivatika* are synonyms. *Punarnava* has *Tikta Rasa*; *Sara* and *Laghu Guna*; *Katu Vipaka*, *Sheeta Virya*. It is *Shothahara*, *Vatahara*, *Vranaropana*, *Kaphahara*, *Ruchya*, *Rasayana*, *Grahi* and *Raktapitthara*.

#### 4. *Kaiyadeva Nighantu* (14<sup>th</sup> A.D.):

It is also known as “*Pathyapathyavibodhaka*” written by *Acharya Kaiyadeva*. *Punarnava* has been described under *Aushadhi Varga*.

##### *Paryaya*<sup>[16]</sup> & *Guna-Karma*<sup>[17]</sup>:

*Punarnava*, *Punarbhru*, *Sada*, *Mandalpatrika*, *Swetamoola*, *Vrishchiva*, *Varshabhu* and *Raktapatraka*, *Shophaghni*, *Jatila*, *Sadyovishoshi* and *Dirghapatraka* are synonyms. *Punarnava* has *Madhura*, *Tikta*, *Kashaya* and *Katu Rasas*; *Sara* and *Ruksha Guna*; *Ushna Virya*. It is *Agnideepana*, *Shothahara*, *Vatanashaka*, *Kaphanashaka*, *Hridya*, *Ruchikarak*. It is indicated in *Arsha*, *Vran*, *Pandu*, *Visha* and *Udara Roga*.

#### 5. *Bhavaprakasha Nighantu* (16<sup>th</sup> A.D.):

*Acharya Bhavamishra* described *Punarnava* in *Guduchyadi Varga*.

##### *Paryaya*<sup>[18]</sup>:

*Punarnava*, *Raktapunarnava*, *Raktapushpa*, *Shilatika*, *Shothaghni*, *Kshudravarshabhu*, *Varshaketu*, *Kathillakah* and *Aruna* are synonyms.

##### *Guna-Karma*<sup>[19]</sup>:

*Punarnava*, *Raktapunarnava*, *Raktapushpa*, *Shilatika*, *Shothaghni*, *Kshudravarshabhu*, *Varshaketu*, *kathillakah* and *Aruna* are synonyms. It has *Tikta Rasa*; *Laghu Guna*; *Katu Vipaka*; *Sheeta Virya*. It pacifies *Vata*, *Pitta Kapha* and *Rakta Doshas*.

#### 6. *Raj Nighantu* (17<sup>th</sup> A.D.):

It is also known by the names of “*Nighantu Raja*” and “*Abhidhana Chudamani*”. *Narhari Pandit* described *Punarnava* under *Parpatadi Varga*.

##### *Paryaya*<sup>[20]</sup>:

*Raktapunarnava*, *Krura*, *Mandalpatrika*, *Raktakanda*, *Varshaketu*, *Lohita*, *Raktapatrika*, *Vaisakhi*, *Raktavarshabhu*, *Shophaghni*, *Raktapushpika*, *Vikasvara*, *Vishaghni*, *Pravrashenya*, *Sarini*, *Varshabhavah*, *Sonapatrah*, *Sonah*, *Sammilitdrum*, *Punarnava*, *Nava* and *Navya* are synonyms.

##### *Guna-Karma*<sup>[21]</sup>:

*Punarnava* is *Tikta*, *Sara*, *Shophanashaka*, *Raktapradaranashaka*, *Pandunashaka* and *Pittanashaka*.

### Synonyms of *Punarnava*

The synonyms suggest the different morphological features along with the therapeutic properties of the plant as enlisted in classical texts are mentioned:

**Table 3.** Showing *Paryaya* (Synonyms) of *Punarnava*

<i>Paryaya</i>	<i>D.N.</i> <sup>[22]</sup>	<i>S.N.</i> <sup>[23]</sup>	<i>M.P.N.</i> <sup>[24]</sup>	<i>K.N.</i> <sup>[25]</sup>	<i>Bh.N.</i> <sup>[26]</sup>	<i>R.N.</i> <sup>[27]</sup>
<i>Aruna</i>	-	-	+	-	+	-
<i>Dirghapatrah</i>	+	-	-	+	-	-
<i>Kathillakah</i>	+	-	+	-	+	-
<i>Kruraka</i>	-	-	+	-	-	-
<i>Kshudravarshabhu</i>	+	-	+	-	+	-
<i>Mahavarshabhu</i>	-	+	-	-	-	-
<i>Pravrishaayani</i>	-	+	-	-	-	-
<i>Raktapushpa</i>	-	-	+	-	+	-
<i>Shilatika</i>	-	-	-	-	+	-
<i>Shivatika</i>	+	+	+	-	-	-
<i>Sonapatrah</i>	-	-	-	-	-	+
<i>Shophaghni</i>	-	+	-	+	-	+
<i>Shothaghni</i>	-	-	-	-	+	-
<i>Tikta</i>	-	-	+	-	-	-
<i>Vishakhah</i>	+	-	-	-	-	-
<i>Varshabhu</i>	-	+	-	+	-	-
<i>Varshaketu</i>	-	+	+	-	+	+
<i>Vrishchir</i>	+	-	-	-	-	-
<i>Vrishchiva</i>	-	-	-	+	-	-
<i>Raktapunarnava</i>	-	-	-	-	+	+
<i>Mandalpatrika</i>	-	-	-	+	-	+
<i>Raktapatrika</i>	-	-	-	-	-	+
<i>Krura</i>	-	-	-	-	-	+
<i>Raktkanda</i>	-	-	-	-	-	+
<i>Lohita</i>	-	-	-	-	-	+
<i>Vaisakhi</i>	-	-	-	-	-	+
<i>Ratavarshabhu</i>	-	-	-	-	-	+
<i>Raktapushpika</i>	-	+	-	-	-	+
<i>Vishaghni</i>	-	-	-	-	-	+
<i>Sarini</i>	-	+	-	-	-	+
<i>Sammilitdrum</i>	-	-	-	-	-	+
<i>Nava</i>	-	-	-	-	-	+
<i>Vikasvara</i>	-	-	-	-	-	+
<i>Pravrshenya</i>	-	-	-	-	-	+
<i>Varshabhavah</i>	-	-	-	-	-	+
<i>Sonah</i>	-	-	-	-	-	+
<i>Punarnava</i>	+	+	+	+	+	+
<i>Navya</i>	-	-	-	-	-	+
<i>Punarbhu</i>	-	-	-	+	-	-
<i>Sada</i>	-	-	-	+	-	-
<i>Jatila</i>	-	-	-	+	-	-
<i>Sadyovishoshi</i>	-	-	-	+	-	-
<i>Raktapatrak</i>	-	-	-	+	-	-
<i>Swetamoola</i>	-	-	-	+	-	-
<i>Viksa</i>	-	+	-	-	-	-
<i>Kathillah</i>	+	-	-	-	-	-

### Interpretation and etymology of synonyms<sup>[28]</sup>

- **पुनर्नवा** - 'पुनर्नवा पुनः अभीक्षणं नवा इति। नूयते वा वैद्यैः पाण्डुप्रभृतिरोगविनाशकगुणविशेषैरिति' (भा.दी.)। 'वर्षर्तौ पुनर्नवा भवति, शरीरं पुनर्नवं करोति इति'।  
It regenerates in the rainy season. Praised by Vaidyas as it is very useful in various diseases.
- **रक्तपुष्पा** - 'रक्ताणि पुष्पाणि अस्या रक्तपुष्पा (पुनर्नवा )' ।  
This has red coloured flowers.
- **शिलाटिका**- 'शिवाटिका इति साधुपाठः'। 'शिवाय कल्याणाय अटति प्रसरति' ।  
It is a spreading plant.
- **क्षुद्रवर्षाभू** - 'वर्षर्तौ पुनर्भवतीति वर्षाभूः । क्षुद्रा चासौ वर्षाभूः क्षुद्रवर्षाभूः' ।  
It sprouts again in the rainy seasons.
- **वर्षकेतुः** - 'वर्ष वर्षर्तु केतयति सूचयतीति, अथवा वर्षर्तौ केतुः ध्वजः इव' ।  
It is a perennial plant regenerating in the rainy seasons.
- **कठिल्लकः** - 'काण्ठां शोकमिलति क्षिपतीतिः' कठि शोके ' इल स्वप्नक्षेपणयोः'। 'कठिनं लातीति कठिल्लकः'।  
As it removes sorrows of ill persons (by removing diseases).

### Vernacular names<sup>[29]</sup>

Sanskrit	:	Kahtilla, sophaghni, sothaghni, Varsabhu
Assamese	:	Ranga Punarnabha
Bengali	:	Rakta <i>Punarnava</i>
English	:	Horse Purslane, Hog Weed
Gujrati	:	Dholisaturdi, Motosatodo
Hindi	:	Gadapurna, Lalpunarnava
Kannada	:	Sanadika, Kommeberu, Komma
Kashmiri	:	Vanjula <i>Punarnava</i>
Malayalam	:	Chuvanna Tazhutawa
Marathi	:	Ghetuli, Vasuchimuli, Satodimula, <i>Punarnava</i> ,
Oriya	:	Lalapuiruni, Nalipuruni
Punjabi	:	Iteit (Ial), Khattan
Tamil	:	Mukurattai (Shihappu)
Telugu	:	Atikamamidi, Erra galijeru

## **Rasapanchaka of Punarnava**

**Table 4.** Showing the *Rasapanchaka* of *Punarnava*

<b>Rasapanchaka</b>	<b>D.N.<sup>[30]</sup></b>	<b>S.N.<sup>[31]</sup></b>	<b>M.P.N.<sup>[32]</sup></b>	<b>K.N.<sup>[33]</sup></b>	<b>Bh.N.<sup>[34]</sup></b>	<b>R.N.<sup>[35]</sup></b>
<i>Tikta Rasa</i>	+	-	+	+	+	+
<i>Kashaya Rasa</i>	-	-	-	+	-	-
<i>Madhura Rasa</i>	-	-	-	+	-	-
<i>Sara Guna</i>	-	-	+	+	-	-
<i>Laghu Guna</i>	+	-	+	-	+	-
<i>Ruksha Guna</i>	+	-	-	+	-	-
<i>Ushna Guna</i>	+	-	-	-	-	-
<i>Ushna Virya</i>	+	+	-	+	-	-
<i>Sheeta Virya</i>	-	-	+	-	+	-
<i>Madhura Vipaka</i>	-	-	-	-	-	-
<i>Katu Vipaka</i>	-	-	+	-	+	-

(D.n. - Dhanwantri Nighantu, S.n.- Shodhal Nighantu, M.p.n.- Madanpal Nighantu, K.n.- Kaiyadeva Nighantu, Bh.n.- Bhavparkasa Nighantu, R.n.- Raj Nighantu)

## **Karma of Punarnava**

**Table 5.** Showing the *Karma* of *Punarnava*

<b>Karma</b>	<b>D.N.<sup>[36]</sup></b>	<b>S.N.<sup>[37]</sup></b>	<b>M.P.N.<sup>[38]</sup></b>	<b>K.N.<sup>[39]</sup></b>	<b>Bh.N.<sup>[40]</sup></b>	<b>R.N.<sup>[41]</sup></b>
<i>Sothahara</i>	+	-	+	-	+	-
<i>Deepan</i>	-	-	-	+	-	-
<i>Ruchikarak</i>	-	-	+	+	-	-
<i>Anulomana</i>	-	-	-	-	-	-
<i>Rechana</i>	-	-	-	-	-	+
<i>Hridya</i>	+	-	-	+	-	-
<i>Kasahara</i>	+	-	-	-	-	-
<i>Vrishya</i>	-	-	-	-	-	-
<i>Mootrajanana</i>	-	-	-	-	-	-
<i>Jwaraghna</i>	-	-	-	-	-	-
<i>Rasayana</i>	-	+	+	-	-	-
<i>Vishaghna</i>	-	-	-	+	-	-
<i>Chakshusya</i>	-	-	-	-	-	-
<i>Kaphanashak</i>	+	+	+	+	+	-
<i>Vatashamak</i>	-	+	+	+	+	-
<i>Arshoghna</i>	-	+	-	+	-	-
<i>Vardhmanashak</i>	-	+	-	-	-	-
<i>Sophanashak</i>	-	+	-	+	-	+
<i>Udararoganashak</i>	-	+	-	+	-	-
<i>Bhedniya</i>	-	+	-	-	-	-
<i>Pandughna</i>	+	-	-	-	-	+
<i>Grahi</i>	-	-	+	-	+	-
<i>Raktpittahara</i>	-	-	+	-	+	-
<i>Urahkshat</i>	+	-	-	-	-	-
<i>Raktapradarnashaka</i>	-	-	-	-	-	+
<i>Pittashamaka</i>	-	-	-	-	+	+



### Botanical Classification

Kingdom	:	Plantae
Order	:	Caryophyllales
Family	:	Nyctaginaceae
Genus	:	<i>boerhaavia</i>
Species	:	<i>B.diffusa</i>

### Morphology<sup>[42]</sup>

**Stem:** Greenish purple, stiff, slender, cylindrical, swollen at nodes, minutely pubescent or nearly glabrous, prostrate divergently branched, branches from common stalk, often more than a metre long.

**Root:** Well developed, fairly long, somewhat tortuous, cylindrical, 0.2-1.5 cm in diameter, yellowish brown to brown coloured, surface soft to touch but rough due to minute longitudinal striations and root scars, fracture, short, no distinct odour, taste, slightly bitter.

**Leaves:** Opposite in unequal pairs, larger ones 25-37 mm long and smaller ones 12-18 mm long ovate-oblong or suborbicular, apex rounded or slightly pointed, base subcordate or rounded, green and glabrous above, whitish below, margin entire or sub-undulate, dorsal side pinkish in certain cases, thick in texture, petioles nearly as long as the blade, slender.

**Flowers:** Very small, pink coloured, nearly sessile or shortly stalked, 10-25 cm, in small umbells, arranged on slender long stalks, 4-10 corymb, axillary and in terminal panicles, bracteoles, small, acute, perianth tube constricted above the ovary, lower part greenish, ovoid, ribbed, upper part pink, funnel-shaped, 3 mm long, tube 5 lobed, stamen 2-3.

**Fruit:** One seeded nut, 6 mm long clavate, rounded, broadly and bluntly 5 ribbed, viscidly glandular.

### Chemical composition<sup>[43]</sup>

Flavonoids, alkaloids, steroids, triterpenoids, lipids, lignin, carbohydrates, proteins and glycoprotein. fixed oil, sulphate chloride, Potassium nitrate, punarnavaine, glycoprotein, punarnavoside, boeravinone, boeravinone quercetin, amino acids, alanine, aspartic acid, leucine, praline, tryptophan, tyrosine, boeravinones A, B, C, D, E, F, G., punarnavaside.

### Pharmacological action

Expectorant<sup>[44]</sup>, Immunomodulatory Effects<sup>[45]</sup>, Antistress<sup>[46]</sup>, Hypoglycaemic Activity<sup>[47]</sup>, Anticonvulsant Activity<sup>[48]</sup>, Anti-Inflammatory Activity<sup>[49]</sup>, Diuretic<sup>[50]</sup>, Cardiotonic<sup>[51]</sup>, Antiviral<sup>[52]</sup>, Laxative<sup>[44]</sup>.

**Parts used:** Whole plant, root, seed. <sup>[53]</sup>

## Discussion and Conclusion

*Punarnava* has *Ushna Virya*, it leads to *Vilayana* of *Kapha* and generates easy expectoration, as well as it is *Kaphadoshahara*. It is immunomodulatory (Mungantiwar AA *et al*, 1999) which helps in eliminating the infection or regulating the allergic responses and helpful in managing respiratory disorders.. It is expectorant (C.P. Khare, 2007) in nature, promotes the secretion of sputum by the air passages, and treat the cough. It is expectorant in nature so these drugs are used in productive cough. *Punarnava* nourish the body with their *Rasayana* effect. It improve *Dhatusara* and *Ojas* and thus increase the *Vyadhikshamatva* (Immunity). It is used worldwide in the treatment of urinary tract disorder and bleeding disorder as well in *Ayurveda*. It is beneficial to our health, which is scientifically proved in many researches.

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