

REVIEW ARTICLE ON BHEDANEYYA MAHAKASHAYA

Dr. Ved Parkash*¹ and Dr. Om prakash sharma²¹Pg Scholar Department of Dravyaguna, Sriganag Nagar College of Ayurvedic Science and Hospital, Sri Ganganagar.²Professor and HOD Dravyaguna, Sriganag Nagar College of Ayurvedic Science and Hospital, Sri Gangar, Rajasthan.

*Corresponding Author: Dr. Ved Parkash

Pg Scholar Department of Dravyaguna, Sriganag Nagar College of Ayurvedic Science and Hospital, Sri Ganganagar.

Article Received on 28/04/2021

Article Revised on 19/05/2021

Article Accepted on 09/06/2021

ABSTRACT

Detailed description of *Bhedaneeya Mahakashaya* is mentioned In *Charaka Samhita Sutra Sthana* fourth Chapter. The word *Bhedana*, means “Breakthrough”. The action by which Solid or liquid *Purisha* and *Malas* i.e *Baddha Mala* or *Abaddha Mala*, will be expelled downwards (through *Guda marg*) is called as *Bhedana*. *Bhedaniya Mahakashaya* in Sanskrit denotes for a group of medicinal plants, classified as “promoting excretion”, Amongst *Charakoktha dashemani gana* i.e. group of drugs which is listed in fourth place. When viewed in depth of 50 *Mahakashayas*, it is observed that, *Shaman oushadhis* and *Shodhana dravyas* are also mentioned for preventive and curative purpose. Whereas *Shodhana Chikitsa* includes *Vamana*, *Virechana*, *Niruha*, *Anuvasana* and *Shirovirechana*. *Virechana* is a type of *Shodhana* process that comes in *Panchakarma* and it involves purgation. In the present study the authors have made sincere efforts to enlighten on *Bhedaneeya Mahakashaya dravyas* explained under *Shadvirechana Shataashriteeya Adhyaya*, which includes *Suvaha*, (*Operculina terpehum* Linn.) *Arka* (*Calotropis procera* Linn.R. Br), *Urubuka*, (*Ricinus communis* Linn), *Agnimukhi*, (*Gloriosa superba* Linn.), *Chitra*, (*Baliospermum montanum* Mull. Arg.), *Chitraka*, (*Plumbago zeylanica* Linn.) *Chirabilva*, (*Holoptelia integrifolia* Planch.), *Shankhini*, (*Euphorbia dracunculoides* Lam.), *Shakuladini*, (*Picrorhiza kurroa* Royle.ex Benth.) *Swarnakshiri* (*Euphorbia thomsoniana* Boiss.) for their Morphological, Pharmacognostical, Pharmacological study.

KEYWORDS: Bhedana, Mahakashaya, Shodhana, Morphology.

INTRODUCTION

The *Mahakashayas* are one of the wonderful concepts explained by *Acharya Charaka* mentioned under *Shad Virechana Shataashriteeya Adhyaya*. This chapter explains five hundred drugs by using which *Kashayas* can be prepared and are grouped in to 50 groups of 10 drugs each. Among them *Bhedaniya dashemani* is the fourth group.^[1] *Mahakashayas* serves both external and internal cleansing. There are some *Mahakashayas* which are add on for formulations used in *Shodhana Chikitsa* to fortify the action of *Shodhana* like *Vamanopaga Mahakashaya* and *Virechanopaga Mahakashaya* and their ingredients have therapeutic action of *Vamana* and *Virechana* respectively. *Bhedaneeya* means the action by which solid or liquid *purisha* and *mala* i.e., *baddha mala* or *abaddha mala*, will be expelled downwards through *Guda marg* (anus).^[2] Four dissimilar types of *Virechana karma* are being mentioned by *Sharnagadhara*, that is *Anulomana*, *Sramsana*, *Bhedana*, and *Rechana*.^[3]

This *Mahakashaya* consists of ten drugs which are used for purification, to treat the chronic disease and for purgation purpose in various disorders. These ten drugs possess different *Rasa*, *Guna*, *Veerya* and *Vipaka* but

their action is *Bhedana karma* on the body. The drugs used in *Bhedaneeya Mahakashaya* for purgation grows in different climatic conditions with different habitat, and the parts used for *Bhedaneeya karma* are also different like roots, latex, bark etc.

MATERIALS AND METHODS

Here drugs of *Charaka's Bhedaneeya Mahakashaya* from *Shadvirechana Shataashriteeya Adhyaya* are considered for detailed discussion.

Drugs of Bhedaneeya Mahakashaya

Suvah (*Operculina terpehum* Linn.), *Arka* (*Calotropis procera* Linn.R. Br), *Urubuka* (*Ricinus communis* Linn), *Agnimukhi* (*Gloriosa superba* Linn.), *Chitra* (*Baliospermum montanum* Mull. Arg.), *Chitraka* (*Plumbago zeylanica* Linn.), *Chirabilva* (*Holoptelia integrifolia* Planch.), *Shankhini* (*Euphorbia dracunculoides* Lam.), *Sakuladini* (*Picrorhiza kurroa* Royle.ex Benth.), *Svarnakshiri* (*Euphorbia thomsoniana* Boiss).^[1]

DETAIL DESCRIPTION OF EACH DRUG

Suvaha/Trivritta (*Operculina turpethum* Linn)

It is a climber belongs to the family Convolvulaceae. Two varieties of Trivrit (*Shweta and Shyama*) are described by Bhavaprakash in *Guduchyadi varga*.^[6] *Nishoth* is having *Ruksha Guna*; *Kashaya (Astringent)*, *Madhura (Sweet) Rasa (Taste)*; and *Ushna Veerya*. By the virtue of its *Ushna veerya*, its mode of action is observed as *Swedana and Virechana karma (S.Su.-41)*.

The laxative effect of Trivrit is mainly due to the presence of turpethin,^[7,8,9] The laxative activity of *Operculina turpethum* leaves was investigated using in vivo models; fecal consistency, intestinal motility and interpooling in mice. Laxatives are agents which enhance the evacuation of unformed watery faeces from the entire colon.^[10] They act by: enhancing retention of intestinal fluid by hydrophilic or osmotic mechanism, decreasing net fluid absorption by effects on small and large intestinal fluid and electrolyte transport, and stimulation of intestinal motility.^[11] The extracts of *Operculina turpethum* leaves demonstrated a potent cathartic activity through causing discharge of watery stool, enhance intestinal motility and increase in intestinal fluid content, which were comparable to the effects produced by castor oil.

Arka (*Calotropis procera* (Linn) R. Br.)

Is a shrub belongs to family Asclepiadaceae, Bhavaprakash mentions two types of Arka i.e. *Arkadvaya (Shweta Arka and Rakta Arka)*.^[6] Acharya Bhavamishra has explained the properties and action of flower and latex of Arka dvaya.^[12] The properties of both the Arkas are similar. Its root bark and latex is specially used for *Rechana. Bhedana property* of Arka is mainly due to its *Ushna Veerya (S.Su.41)* and *tikshna guna (Malashodhaka or Malasaraka)*. According to Dunean the root bark is said to be similar to *Ipecacuanha* because of the presence of madaralban which showsemetic effects.

Urubuk/Eranda (*Ricinus communis* Linn)

It is an annual shrub of family Euphorbiaceae which is popularly known as 'Castor plant' and commonly known as 'palm of christ'. It is of two types described by Bhavamishra (*Shweta and Rakta Eranda*). Acharya Bhavamishra has mentioned *Rakta Erand* is having lesser properties in comparison with *Shweta Eranda*.^[13] *Erand taila* acts as purgative due to *Ushna Veerya (S.S.Su.-41)* and *Guru Guna (Malasaraka)*.

At present, FDA recognizes Castor oil as generally safe and effective for over-the-counter use as a laxative drug. When the Castor oil is taken, it is converted into ricinoleic acid which is the active laxative agent. It directly acts on intestinal mucosa or nerve plexus and alters water and electrolyte secretion. Castor oil is preferred when more complete evacuation is required.^[14] The seeds of the plant are used as the fertilizer after the

oil is extracted from the seeds and cooked to destroy the toxins and incorporated into animal feed.

Agnimukhi/Langali (*Gloriosa superba* Linn)

It is a beautiful climber which belongs to family Liliaceae. The tuberous root of *Langali* is used for *Bhedana karma*. The action of *Bhedana of Langali* is due the *Tikshna (Malshodhaka or Malasaraka)*, *Sara Guna* and *Ushna Veerya (Malasaraka)*. It is indicated in skin diseases (*Kustha*), swelling, piles, wound and pain. It is also used for abortion of unwanted pregnancy in female. The colchicine which is a major component of *Gloriosa* is mainly responsible for toxic effect (Vishwanathan and Joshi, 1983).

The toxins present have an inhibitory action on cell division, and depressant action on the bone marrow. Just after Ingestion of tubers, the symptom develops within two hours; vomiting, numbness and severe effects on throat as well as diarrhea leading to dehydration. Alopecia and dermatitis are the major symptoms develop after two to three weeks after poisoning (Jayaweera, 1982).

Traditionally, water extract of *Gloriosa superba* tuber has been used as an abortifacient.^[3]

Burkill, 1995; Dounias, 2006; Ghani, 1998; Haerdi, 1964; Jain et al, 2004; Manandhar, 2002; Neuwinger, 1996; Sandhya et al, 2006.

Chitra / Danti (*Baliospermum montanum* Muell-Arg)

It is a shrub belonging to the family Euphorbiaceae *Upachitra, Chitra* are the synonyms as seeds are mottled. *Danti* is Synonym based on *Karma* (Pharmacological property) as it destroys the *Arsha (piles)* and *Kustha (skin diseases)*.

Its root and seeds are used for *Bhedana karma*. For the removal of *Vikasi guna* purification of *Danti* is required. The properties of *Danti* are *Katu rasatmaka*(Pungent Taste) *Tikshna (Malasaraka)* and *Sara gunatamaka*; and having *Katu (Pungent) Vipaka* and *Ushna Veerya (Virechaka)*. Due to *Tikshna* and *Sara guna* and *Ushna Veerya, Danti* acts as purgative.

The aqueous extract of the root when it is tested for its purgative action on animal models showed positive results at a dose of 600 mg/kg body weight. A preliminary phytochemical analysis of the drug powder shows the presence of anthraquinones and carbohydrates which are believed to be active constituents in the purgative action.

G.V.R. Joseph, Pharmacognostic study on the Roots of *Baliospermum raziana* keshav Et Yog; 2002.^[15]

Chitraka (*Plumbago zeylanica* Linn.)

Is an annual herb of family Plumbaginaceae. *Chitraka* root is used for medicinal purpose According to *Yogaratanasamuccayam*, there are three types of

Chitraka-black, white and red.^[15] *Vagbhata's Astangahrdayam* mentions three types of *Chitrak* viz. yellow flowered, white flowered, black flowered—more effective in successive order. These when used as per proper procedure, they act as rejuvenator.^[16]

The pharmacological properties of *Chitraka* are *Laghu*, *Ruksha* and *Tikshna Guna*; *Katu* (Pungent Taste) *Rasa*; *Katu Vipaka* and *Ushna Veerya*. Its *Bhedaniya karma* is unknown as mentioned by *Bhavaprakash*. Its action of *Bhedana* or *Virechana karma* is done by its *Tikshna Guna* (*Malasaraka*) and *Ushna Veerya* (*Virechaka-Su.Su.41*). Roots of *Chitrak* are best appetite stimulant (*Deepana*), digestive (*Pachana*) and best remedy in anus inflammation, piles and abdominal pain.^[17]

Chirabilva (Holoptelia integrifolia Planch)

It is a medium size tree belonging to the family *Ulmaceae*. Bark and leaves are used as bitter, astringent, thermogenic, anti-inflammatory, digestive, carminative, laxative, anthelmintic, depurative, repulsive, and urinary astringent.^[18] The properties of *Chirabilva* are *Laghu*, *Ruksha* in *guna*; *Tikta* (Bitter), *Kashaya* (Astringent) in *Rasa*; *Katu* (Pungent) in *Vipaka* and *Ushna* in *Veerya*. Its stem bark is used for medicinal purpose. *Bhedan karma* of *Chirabilva* is due to the *Ushna Veerya* (-*Su.Su.41*). Ethno-medically, the leaves and stem bark of this plant have been used by tribes as antiviral, antioxidant, antimicrobial, abortifacient preparations and in the management of cancer. Recent studies on plant show that it has potential to fight against tumor and obesity as well.

Shankhini (Euphorbia dracunculoides Lam)

Even though it is enlisted under controversial drug. Some efforts are made by scholars for identification of this drug.

Euphorbia dracunculoides Lam. (*Euphorbiaceae*) is reported as a new record for the flora of Yemen.^[19] *Euphorbia dracunculoides* of family *Euphorbiaceae* during previous studies had established the in vitro antioxidant and in vivo anti-inflammatory activities. The

plant is used by the local communities of Pakistan for various disorders including rheumatism and edema. Recent scientific studies showed hepato protective effects against CCl_4 induced toxicity in rat.^[20]

Shakuladani /Kutaki (Picrorhiza kurroa Royle.ex Benth)

Is a perennial herb of family *Scrophulariaceae*, the properties of *Shakuladani* are *Laghu*, *Ruksha Guna*; *Tikta* (Bitter taste) *Rasa*; *Katu* (Pungent) *Vipaka* and *Sheeta* in *Veerya*. The *Bhedana karma* of *Kutaki* is due to its *Prabhava*.

Kutaki possesses surface lowering action. The drug due to surface lowering action facilitates penetration into the fecal mass thus soften it; which scientifically supports the *Bhedana* action mentioned in *Ayurveda* for *Kutaki*. *Kutaki* does not contain anthraquinone and is non-irritant. It also does not swell in water. "Gurudip Singh and GN Chaturvedi, Mode of purgative action of *Kutaki* (*Picrorhiza kurroa*)-a chemical assay; published in *JAPS*; Vol.3, Issue 3, July 2016."

Picrorhiza is used in India for the people with constipation due to insufficient digestive secretion., "The *Ayurvedic Pharmacopoeia of India*, Part-I, Government of India Ministry of Health and Family welfare Department of Ayush, 2007; 2: 91-93."

Swarnakshiri (Euphorbia thomsoniana Boiss)

It is also a controversial drug. *Argemone maxicana* is not original *Swarnakshiri*, It is the substitute/ adulterant of *Swarnakshiri*. The root and seeds of *Argemone maxicana* shows *Bhedana Karma*. It is having *Tikta* (Bitter Taste) *Rasa*; *Katu* (Pungent) *Vipaka* and *Ushna Veerya*. Its *Bhedana Karma* is due to *Ushna Veerya* (*Su.Su.41*).

The habit of all 10 drugs mentioned in *Bhedaniya Mahakashaya* differs from each other. Among these drugs, some are climber, herbs, shrubs and medium size trees. These are clearly depicted by **Table 1**.

Table 1: Habit/Morphology.

S. No.	Plant name	Habit
1.	<i>Trivritta (Operculina terpeum Linn.)</i>	Climber
2.	<i>Arka (Calotropis procera Linn.R. Br)</i>	Shrub
3.	<i>Eranda (Ricinus communis Linn.)</i>	Shrub
4.	<i>Langali (Gloriosa superb Linn.</i>	Climber
5.	<i>Chitra (Baliospermum montanum Muell-Arg.)</i>	Shrub
6.	<i>Chitraka (Plumbago zeylanica Linn.)</i>	Herb
7.	<i>Chirabilva (Holoptelia integrifolia Planch.)</i>	Medium size tree
8.	<i>Shankhini (Euphorbia dracunculoides Lam.)</i>	Controversial
9.	<i>Kutaki (Picrorhiza kurroa Royle.ex Benth.)</i>	Herb
10.	<i>Swarnaksheeri (Euphorbia thomsoniana Boiss.)</i>	Herb

Useful parts of medicinal plants play an important role to achieve desired therapeutic effect. Even different parts of same plants vary in their chemical constitution and

pharmacological action. The useful parts of drugs of *Bhedaniya Mahakashaya* are not similar it varies from drug to drug, but their action is almost similar

i.e *Bhedana karma*; The action of every drug is most oftenly due to its *Veerya* /potency.

Table 2: Prayojya Anga.

S. No.	Plant name	Useful part
1.	<i>Operculina terpeethum</i> Linn.	Root bark
2.	<i>Calotropis procera</i> Linn..R. Br.	Root bark and milk
3.	<i>Ricinus communis</i> Linn.	Seed oil
4.	<i>Gloriosa superb</i> Linn.	Tuberous root
5.	<i>Baliospermum montanum</i> Muell-Arg.	Root and seed
6.	<i>Plumbago zeylanica</i> Linn.	Root
7.	<i>Holoptelia integrifolia</i> Planch.	Stem bark
8.	<i>Euphorbia dracunculoides</i> Lam.	Controversial
9.	<i>Picrorhiza kurroa</i> Royle.ex Benth.	Root
10.	<i>Euphorbia thomsoniana</i> Boiss.	Root and seed

Evaluation of pharmacological action of Bhedaniya Mahakashya Gana

The **Table 3** shows that most of the drugs are having *Tikta* (Bitter) and *Katu Rasa* and *Laghu, Ruksha Guna*. And few drugs are having *Madhura rasa*.

Table 3: On the basis of Rasa and Guna.

S. No.	Plant name	Rasa (Taste)	Guna (Qualities)
1.	<i>Operculina terpeethum</i> Linn. R.Br.	Madhur (Sweet)	Ruksha
2.	<i>Calotropis procera</i> R. Br.	Katu (Pungent), tikta (Bitter)	Laghu, ruksha, tikshna
3.	<i>Ricinus communis</i> Linn.	Madhur (Sweet)	Guru
4.	<i>Gloriosa superb</i> Linn.	Tikta(Bitter), katu (Pungent) and kashaya (Astringent)	Laghu, tikshna
5.	<i>Baliospermum montanum</i> Muell-Arg.	Katu (Pungent)	Tikshna, sar
6.	<i>Plumbago zeylanica</i> Linn.	Katu (Pungent)	Laghu and ruksha
7.	<i>Holoptelia integrifolia</i> Planch.	Tikta (Bitter), Kashaya (Astringent)	Laghu, ruksha
8.	<i>Euphorbia dracunculoides</i> Lam	Not described	Not described
9.	<i>Picrorhiza kurroa</i> Royle.ex Benth.	Tikta (Bitter)	Laghu, ruksha
10.	<i>Euphorbia thomsoniana</i> Boiss.	Not described	Not described

Majority of drugs are having Ushna Veerya and Katu Vipaka and only few are having Sheeta Veerya. The **Table 4** shows Veerya and Vipaka of each drug.

Table 4: On the basis of Vipaka and Veerya.

S. No.	Name of the Drug	Vipaka	Veerya
1.	<i>Trivritta</i> (<i>Operculina terpeethum</i> Linn. R.Br)	Katu (Pungent)	Ushna
2.	<i>Arka</i> (<i>Calotropis procera</i> R. Br).	Katu (Pungent)	Ushna
3.	<i>Eranda</i> (<i>Ricinus communis</i> Linn.)	Madhur (Sweet)	Ushna
4.	<i>Langali</i> (<i>Gloriosa superb</i> Linn.)	Katu (Pungent)	Ushna
5.	<i>Chitra</i> (<i>Baliospermum montanum</i> Muell-Arg.)	Katu (Pungent)	Ushna
6.	<i>Chitraka</i> (<i>Plumbago zeylanica</i> Linn.)	Katu (Pungent)	Ushna
7.	<i>Chirabilva</i> (<i>Holoptelia integrifolia</i> Planch.)	Katu (Pungent)	Ushna
8.	<i>Shankhini</i> (<i>Euphorbia dracunculoides</i> Lam.)	Not described	Not described
9.	<i>Kutaki</i> (<i>Picrorhiza kurroa</i> Royle.ex Benth.)	Katu (Pungent)	Sheeta
10.	<i>Swarnaksheeri</i> (<i>Euphorbia thomsoniana</i> Boiss.)	Not described	Not described

Due to the presence of following Phytochemicals, drugs show the purgative property as mentioned in **Table 5**.

Table 5: On the basis of Phytochemicals.

S. No.	Plant name	Phytochemicals
1.	<i>Operculina terpepethum</i> Linn. R.Br.	Alpha and beta turpethins, turpethinic acid, coumarin, scopoletin
2.	<i>Calotropis procera</i> R. Br.	Alpha and Beta amyryns, Beta-sitosterol, calotropin, calotropain, proceroside, proceragenin
3.	<i>Ricinus communis</i> Linn.	Arachidic, ricinoluc, palmitic, hydrocyanic and uric acid
4.	<i>Gloriosa superb</i> Linn.	Colchicina, puteolin, beta-sitosterol, isoperlolyrine, cornigerina, bechuanina
5.	<i>Baliospermum montanum</i> Muell-Arg.	Baliospermim montanin, axillarenic acid
6.	<i>Plumbago zeylanica</i> Linn.	Chitranona, plumbagin, isozeylinona, droserone, plumbagic acid, beta-setasterol, dihydrostrona
7.	<i>Holoptelia integrifolia</i> Planch.	Hexacosanol, beta-amyryn, friedelin, beta-sitosterol, 2-Aminonaphthaquinone
8.	<i>Euphorbia dracunculoides</i> Lam.	---
9.	<i>Picrorhiza kurroa</i> Royle.ex Benth.	D-mannitol, kutkiol, kutkisterol, kutkin, picrorhizin, phenolglucosides
10.	<i>Euphorbia thomsoniana</i> Boiss.	---

DISCUSSION

Bhedaniya Mahakshaya is the fourth *Mahakshaya* of *Dashemani gana* of *Charaka Samhita*. The drugs which are mentioned under this *Dashemani gana* are classified on the basis of *karma* of *dravya*, thus *dravyas* mentioned in *Bhedaniya Mahakshaya* show *Bhedan Karma*. The drugs collected in this group are having different Habits like herb, shrub, tree and climber (**Table 1**) and most of them belong to the family Euphorbiaceae. Morphologically drugs of this class are herb, shrub and climber and their almost useful parts are roots and seeds (**Table 2**). As we know that *Bhedan Karma* of these *dravyas* are based on their *Rasa*, *Guna*, *Veerya* and *Vipaka*, (**Table 3**); most of the *dravyas* of this group are having *Katu*(Pungent), *Tikta* (Bitter Taste) *Rasa* and *laghu*, *Ruksha Guna* with *Katu Vipaka* and *Ushna Veerya* (**Table 4**).

Most of the drugs of this group useful parts are roots and seeds having phytochemicals like turpentine, β -sitosterol and terpene content, Castor oil and ricinoleic, Prostaglandin receptors 2, the bitter principles, superbine and gloriosine in less quantity, Axillarenic acid, 12-deoxy-5 β -hydroxyphorbol-13-myristate, 13-palmitate, 12 deoxyphorbol 13-palmitate, baliospermin, and montanin, plumbagin, 3- Chloroplumbagin, 3, 3-biplumbagin binaphthoquinone, holptelin-A (epifriedelinol palmitate) and holoptelin-B (epifriedelinol stearate), friedelin and epi-friedelinol, 2-aminonaphthaquinone and β -sitosterol, glycosides picoside I, II and III, picrorhizin, kutkoside, kurrin, kuthinol, kutkiol, kutkisterol, kutkoside, androsin, apocynin, drosin and cucurbitacin. These stimulates the mucosa of gut, irritates local reflexes, increases the peristalsis by irritation of nerve endings of intestine. Further it induces contraction of the intestinal smooth muscles and increases the secretion by irritating the

mucous membrane of the gastrointestinal tract as well as its motility which leads to purgation.

CONCLUSION

Here it is concluded that most of the drugs used in *Bhedaniya Mahakshaya* are of Euphorbiaceae family; their root and seeds are used for *Bhedana Karma* according to the *Dravyasthita Katu* (Pungent) and *Tikta* (Bitter Taste) *Rasa*, *Laghu*, *Ruksha* and *Sar Guna*, *Ushna Virya*, and *Katu Vipaka*.

Bhedana dravyas may be included under choleric. Due to the presence of the phyto-chemicals like turpentine, β -sitosterol and terpene content, Castor oil and ricinoleic acid, the bitter principles, superbine and gloriosine in less quantity, baliospermin, and montanin, plumbagin picrorhizin, kutkoside etc induce contraction of the intestinal smooth muscle, which further effects forceful constriction of gall bladder leading to the expulsion of excessive bile into the gastro-intestinal tract. This causes increased peristaltic movement leading to purgation. The recent scientific studies proved that the actions of *Bhedaniya Mahakshaya* drugs are purgative in nature when used judiciously.

Source of Funding

None.

Conflict of Interest

None.

REFERENCES

1. C K Shastri G N Chaturvedi Charaka SamhitaChaukhamba Bharati AcademyVaranasi., 2001.
2. J L N Shastry Dravyaguna VigyanVolume 1Chaukhamba OrientaliaVaranasi, 2017215.

3. S K R Murthy Sharngdhara Samhita Purva Khanda 4/2-7SharngdharaChaukhamba OrientaliaVaranasi, 201217.
4. P Srivastava Dravyaguna VigyanVolume 1First edition Chaukhambha Publication Varanasi, 201627.
5. Drvayaguna Vigyanam V M Vaidya Gogte.
6. B Mishra K C Chunekar Guduchyadi vergaBhavaprakasha Nighantu9th Edition Chaukhamba Bharati AcademyVaranasi, 1993.
7. V Sharma M Singh Alterations induced by N-Nitrosodimethylamine and ethanolic root extract of *Operculina turpethum* in serum lipid profile of male albino mice Asian J Pharm Clin Res., 201256973.
8. K M Nadkarni A K Nadkarni Bombay: Popular PrakasanIndian Mat Med., 200716915.
9. K S Mhaskar E Blatter J F Caius K R Kirtikar B D Basu Illustrated Indian Medicinal Plants Sri Satguru Publications Delhi, 8: 2000238790.
10. L L Brunton K L Parker D K Blumenthal I L O Buxton Goodman and Gilman's Goodman and Gilman's The Pharmacological Basis of Therapeutics11th editionMc Graw Hill MedicalNew York, 2007.
11. H P Rang M M Dale J M Ritter R K Moore Pharmacology 6th edition Churchill Living Stone Edinburgh, 2009.
12. B Mishra K C Chunekar Guduchyadi varga, Shloka no.-70-71Bhavaprakasha Nighantu 9th Edition Chaukhamba Bharati AcademyVaranasi, 1993.
13. B Mishra K C Chuneka Guduchyadi varga, Shloka no.- 60-63Bhavaprakasha Nighantu 9th Edition Chaukhamba Bharati AcademyVaranasi, 1993.
14. W C Evans Trease and Evans' Pharmacognosy13rd edition Bailliere Tindall London, 1992.
15. Arya Vaidya Sala. Indian Medicinal plants - a compendium of 500 species Orient Longman Ltd Varanasi, 4: 20033216
16. K R M Srikantha Vāgbhata's Aṣṭāṅghridayam, Chowkhamba Volume 3Krishnadas Academy Varanasi, 2012391
17. S Kashinath C Gorakhanath The Charak Samhita of Agnivesha Part IChawkhamba Bharati Academy Varanasi, 199846771
18. N D Prajapati S S Purohit A K Sharma A Handbook of Medicinal Plants: A Complete Source Book Agrobios Jodhpur., 2003.
19. O S S Al-Hawshabi *Euphorbia dracunculoides* lam. (EUPHORBIACEAE): A New Record To The Flora of Yemen, 2015181118
20. R Batoor M R Khan M Majid *Euphorbia dracunculoides* L. abrogates carbon tetrachloride induced liver and DNA damage in ratsBMC Complement Altern Med., 201717122310.1186/s12906-017-1744-x
21. J L Shastri Dravya Guna VijnanaVolume IIChaukhambha OrientaliaVaranasi2008315