A Comprehensive Review of Karavīra, A Familiar Plant as Depicted in Classical Texts of Āyurveda

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ABSTRACT

Background: Karavīra, though considered as Upviṣa, has been a part of Ayurvedic pharmacopoeia for treating many diseases. As a drug, karavīra and its various parts have been utilized in different dosage forms against various disease conditions through external and internal application. Classical texts are written at different time periods, since the origin of Āyurveda. These information have not been critically reviewed and published in a compiled format. A systematic review regarding the identification and use of this classical drug is the need of time.

Aim: To have a comprehensive review on karavīra like classification, synonyms, pharmacological properties, actions, varieties, and formulations containing karavīra or its parts as an ingredient from different classical texts and to present them in a systematic manner.

Results: After review, different opinions are found about the types of karavīra based on their flower color. Various synonyms are attributed to describe its morphological as well as pharmacological characters. Ayurvedic classics classified karavīra in varga based on various criteria. Karavīra has been used as an ingredient in 222 formulations having external and internal uses. Nerium oleander L. and Thevetia peruviana (Pers.) K. Schum. are source plants of karavīra reported for their therapeutic value and various pharmacological activities. All parts of these plants are having toxic properties because of their phytoconstituents present in them.

Conclusion: Karavīra described in classical texts of Āyurveda by using various synonyms, their varieties, varga, their rasapañcaka, karma, and a wide range of therapeutic importance in 222 formulations to combat 62 disease conditions. Maximum formulations are indicated in the treatment of Kuṣṭha. Maximum dosage forms are Taila. External application of karavīra are found more as compared to internal application, which may be due to its poisonous character.

Keywords: Aśvamāra, External uses, Internal uses, Nerium oleander, Poisons, Thevetia peruviana, Upaviṣa.
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INTRODUCTION

Āyurveda describes four basic factors that are most essential for advocating proper treatment. Among these, Ausadha (Bheṣaja) is graded at the second rank, which is the main source of therapeutics.1 Among many medicinal plants described in Ayurvedic pharmacopoeia, karavīra due to its reported pharmacological actions has been well highlighted in the classical treatise and compendiums of Āyurveda and kept under Upaviṣa (semipoisonous) group of drugs.2 Although known for its poisonous effect, this drug has been well described in all these texts about its types, pharmacological properties, action, and therapeutic indications. In therapeutic dose, it has the capability to treat many diseases; therefore, it is used as an ingredient in various Ayurvedic formulations. Different parts of the plant have been included in various formulations and recommended for both external and internal uses. Ayurvedic pharmacopeia includes texts known as Sarhītī Grantha, Cikitsā Grantha, Sarṅgraha Grantha, and Rasa Grantha written at different time periods, since the origin of Āyurveda. A comprehensive single-hand information on drug karavīra is lacking till date. Hence, a meticulous review work was undertaken to create an exclusive database on karavīra from all available texts of Āyurveda.

MATERIALS AND METHODS

Available classical treatise and compendiums were searched individually word by word in all the chapters for karavīra or its synonyms, its pharmacological properties, its varieties (Śveta, Rakta, and Pita), and actions. The available 26 Sarhītī grantha and Cikitsā grantha, 46 Rasa grantha, and 31 nighañṭu were reviewed.

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Navajivana,47 Rasa Sanketa Kalikā,48 Rasāyana Sāra,49 Rasendra Purāṇa,50 Nighantuḍārṣa,51 Amarakośa,52 Aṣṭāṅganihantu,53 Paryāyaratnamālā,54 Dhanavanataringihantu,55 Śābdacandrikā,56 Sodhalanihantu,57 Nighantuṣeṣa,58 Abhidhānaratnamālā,59 Mādhavadrayayogu,60 Hṛdayadipakanihantu,61 Mada-napālanihantu,62 Kaiyadevanihantu,63 Sarasvatiningantu,64 Bhāvaprākāśasingihantu,65 Rājanihantu,66 Sivakosānihantu,67 Rājavallabhānihantu,68 Śāligrāminihantu,69 Abhidhānānanjini,70 Priya nighantu,71 Siddhasāranihantu,72 Paryāyamuktaivali,73 Candranihantu,74 and Harmekhalanihantu75 have been compiled and information pertaining to karavíra were collected.

From the above referred texts, information on karavíra such as synonyms, pharmacological properties, actions, variety, and formulations containing karavíra or its parts, as an ingredient, were critically studied and recorded in a specially designed information sheet. Various Ayurvedic technical terms were presented with equivalent English terms in parenthesis by referring the well-accepted dictionaries.76 Approximate English equivalent of various disease conditions were referred from Ayurvedic Formulary of India77 and presented in parentheses. The varieties of the plants assigned with synonyms and karma were also specifically enumerated in Table 2.

Various formulations for easy understanding were assigned their probable English equivalents along with abbreviations and were kept in parentheses, such as Lepa (Lp) (topical application), Taila (TL). Rasa Kalpana (Rk) (mercurial preparation), Kvātha (Kv) (decocotion), Ghṛta (Gh) (medicated ghee), Cuṛṇa (Cr) (powder), Svarasa (Sv) (juice), Guttikā (Gt) (pills), Agada (Ag), Arjana (An) (collyrium), Kṣāra (alkaline preparation), Dhūma (Dh), Vṛti (Vr), Arka (Ar), Ghana (Gh), etc.

**Results and Discussion**

On review, it was found that three varieties of karavíra, i.e., Rakta, Śveta, and Pīta karavíra were used in formulations. These varieties are on the basis of the color of their flower. In Ayurvedic lexicon, there are different opinions about the types of karavíra. Rakta and Śveta varieties of karavíra are mentioned in most of the nighantu. In Rāja nighantu, Kṛṣṇa variety of karavíra is mentioned without describing its property, while in Śāligrāma nighantu, Gulābi variety of karavíra is mentioned with its properties and action. The types of karavíra mentioned in Ayurvedic nighantu are presented in Table 1.

In formulations, it was found that various terms were used for karavíra and its varieties (Rakta, Śveta, and Pīta) such as Aśvaghna, Aśvamāra, Aśvamāraka, Hayamāra, Hayāri, Vājīmāra, Raktakaravīra, Śvetakaravīra, etc. In Āyurveda, traditionally, various names known as Paryāya (synonyms) have been attributed to a single plant to describe its morphological as well as pharmacological characters. Nighantu throws light on to the secret meanings of the terms denoting different synonyms and describing the properties and indications of the plant along with its synonyms. In nighantu, various synonyms were used for karavíra. On observation it was found that a total of 75 synonyms have been attributed to karavíra based on their habit, morphological characters and pharmacological properties. In spite of the common synonyms, some of the nighantu use synonyms for specific varieties of karavíra such as Aksābijāvāna, Abjabijābhṛta, Śataprāśa, etc., for Śveta variety; Candā, Candāka, Candālikā, Laguda, etc., for Rakta karavíra; Gauripuṣpa, Ravipriya, etc., are for Pīta karavíra. These exclusive synonyms and their varieties are mentioned in parentheses (Table 2).

On critical analysis of synonyms attributed to karavíra, it can be summarized that the plant is highly toxic (Karavíra, Karavíraka, Candā, Candāka, Candālikā, Candāta, Candāta, Pratīhāsa, Viṛa, Viṛaka) whose stems and branches possess innumerable leaves, which is similar to the scalp possessing innumerable hair follicles (Śataprāśa, Śatkunda, Śatkumbha) and causes accidental poisoning to horses (Aśvaghna, Aśvahā, Aśvarohā, Aśvarodhaka, Aśvaroma, Aśvamoha, Aśvāmāra, Aśvāmāraka, Hayagṛha, Hayamāra, Harāpriyā, Hayadruma, Hayāri, and Hayairupa). It produces many flowers at a time (Śataprāśa) and its seed resembles those of lotus (Abjabījabhṛta). All the above described botanical as well as pharmacological characters match with the plant *Nerium oleander* L. and *Thevetia peruviana* (Pers.) K. Schum. of the family *Apocynaceae*. The detailed lists of interpretations of these synonyms of karavíra have been enumerated in Table 2.

On the basis of morphology, property, pharmacodynamics and therapeutic values, ancient texts classified karavíra in to Mahākāṣyā, Gana, Varga, and Skandha. The signature and simile is perceived while going through these classifications certifying the scientific approach of nighantu behind these classifications. In Nighantuṣeṣa and Sarasvatini nighantu, karavíra is classified according to habit and quoted in Viṛākānanda and Kṣaṇa varga, respectively. Abhidhānaratnamālā mentioned karavíra in Tikta and Kaṭuskandha based on their Rasa (Taste). The details of classification are enumerated in Table 3.

A drug performs certain local and general actions by its Rasa and Guṇa, and certain specific therapeutic actions by its Vipāka and Virya. Ācārya Caraka states that some substances act in accordance with their Rasa (taste), others in accordance with their qualities or post digestive effects (vipāka), others in accordance with their Virya

| Nighantu | Types | Varieties |
|----------|-------|----------|
| Dhanvantari nighantu,55 Abhidhāna Manjani,70 | 2 | Śveta (white), Rakta (red) |
| Bhāvaprākāśa nighantu,46 Nighantu sēṣa,58 Madanpāla nighantu,62 Sarasvati nighantu,64 Sodhala nighantu,77 Paryāyaratnamālā,54 Candra nighantu74 | 3 | Śveta (white), Rakta (red), Pīta (yellow) |
| Kaideva nighantu,53 Śivakoṣa,67 Priya nighantu,71 Nighantu adārśa,57 Ṛṣṭi | 4 | Śveta (white), Rakta (red), Pīta (yellow), Kṛṣṇa (black) |
| Śāligrāma nighantu69 | 5 | Śveta (white), Rakta (red), Gulbi (pink), Pīta (yellow), Kṛṣṇa (black) |
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**Table 2: Important synonyms attributed to karavira and their interpretation**

| Synonym of karavira | Nirukti and interpretation |
|---------------------|----------------------------|
| **Based on properties** |
| Bhandāta,56 Candā (rakta),57,58,63,69 Candākā (rakta),55 Candāla (rakta),63,70,74 Candālikā (rakta),74 Candāta (rakta),51,57,58,62-65,67 Candātaka (rakta),55 Karavīra,58,63, Karavīra,51,53-59,61-67,69,70,73-75 Karavīra,55,77,74 Mahāvīra (śveta),56 Pracanda (rakta),55,57,63,70,74 Pratihāsa (śveta),51,55-57,63,64,66,70,74 Virā,59 Viraka (śveta),66 Vicindikā,23 |
| **Based on pharmacognosy** |
| Abjabījabhṛta63 |
| **Based on morphology** |
| Aśabājivāna (śveta),57 Alpapurśikā (pita),63 Catuskā (rakta),70 Dirghapatra,59 Gulmaka (rakta),55,58,63,70,74 Gulmakāsava,57 Minākṣī,57,63 Pitapurṣa,63 Pitapurṣa,66 Raktakaravīra,55,66 Raktapurṣa,57,58,62,65,69,70 Satakumbha,62,63,65,66,69 Satakunda,70 Śakunda (śveta),66 Sakuntra,74 Sataprāsa (śveta),51,56,63,64 Śitakanṭha,57 Śitakumbha,54 Sitapuṣa,70 Śvetakunda,55 Śvetapurṣa,55,57,58,62,63,65,66,69,74 Sthalādikumuda (śveta),66 Kṛṣṇakusuma (kṛṣṇa),66 Kumududhava (śveta),66 Kṣvedakanda,73 Laguda (rakta),55,57,58,62,63,65,69,70,74 Kasturikā,73 Sugandhikusuma (pita)66 |
| **Based on action** |
| Āśvaghaṇa,54,55,57,63,66,70,74 Āśvāhā,55,59,62,63 Āśvamāra,51,53-58,63,65-67,69,70,73-74 Āśvānaśaka,66 Āśvāntaka,56 Āśvaroha,58 Āśvarodhaka,66,67,70,74 Āśvaromaka,63 Āśvamahaka,55,57 Bhūtāvii (rakta),56 Gulmahgo,64 Harāprīya (śveta),66 Hayadrūma,59 Hayaripu,75 Hayaghna,66 Hayamāra,55,63,70 Hayamāraka,51,56,64,66,75 Hayāri,54,66,75 Kṛṣṇa (rakta),56 Nakharāsava (śveta),66 Pātalika (pita),63 Pādhāya (pita)63 |
| **Based on mythological uses** |
| Candikusuma (rakta),66 Divyapurṣa (śveta),66 Gandharvasva,57 Ganeśakusuma (rakta),66 Gaurīpuṣa,66,67 Gopīprasavaha (śveta),66,67 Gopīraya (rakta),66 Siddhīpuṣa (śveta),66 Suraśrītho66 Munibhiha (rakta)66 |

Highly potent drug. Its stem and branches possess many leaves.

It's seed resembling those of Lotus.

It causes accidental poisoning to horses. The plants that bring incision properties.

It is emphasized in most Nighaṇṭu that Karavīra is Kaṭutikā in Rasa, Kaṭu viṣpāṇa and Tiṣṇa, Laghu Guṇa, Uphughrata. No Prabhāvīya property has been attributed to Karavīra. The details of Rasapāṇchakā attributed to Karavīra are presented in Table 4. Based on these Rasapāṇchakā, Karavīra shows various therapeutic potential against different disease conditions. In reviewed Ayurvedic classics, karavīra was found to be used in 62 disease conditions as stated earlier. In nighaṇṭu, various properties and karmas (action) are mentioned for karavīra based on their Rasapāṇchakā. Rāja nighaṇṭu, Śālīgrāma nighaṇṭu, and Kaiyadeva nighaṇṭu mentioned specific karmas of Śveta, Rakta, and Pita Karavīra. Karma attributed to varieties are shown in parentheses (Table 5). The details of Karma (action) attributed to karavīra are presented in Table 5.

**Śodhana of Karavīra**

Karavīra has been included under Śthāvara Viṣa, Upaviṣa gana, Viṣa vrka and Mūla viṣa varga (Table 3). Śodhana of its root bark has been recommended by Yogratnākara15 which includes Svedana (Boiling) of Karavīra root bark in Godugdha, in dolā yantra, for one prahara (for 3 hours). Further, shodhana of drugs of Upaviṣa group has also been recommended through Parācagavyā.51

**Internal Application**

**Annavaḥa-Puriśavaha Śrotasa**

Formulations containing karavīra indicated for internally managing various diseases of Annavaḥa-Puriśavaha Śrotasa are presented in Table 6. Three formulations are indicated in Grahaṇi (sprue), two in Śūla (colic pain), two in Atisāra (diarrhea), two in Udara (abdominal diseases), and two in Plīhā (splenic disorder). Other indications, one formulation each in Agnimāna (digestive impairment), Guḍā roga (anorectal diseases), and Kṛmi (worm infestation). One formulation used as Virecana (purgative) and one formulation used as Samsādhanā. Mūla (root) as part has found maximum use (7) followed by Patra (leaf) and Tvaka (bark). Rasa kalpana (5), Svarasa (3) and Gutikā (2) are maximum dosage forms found in the management of Annavaḥa-Puriśavaha Śrotasa presented in Table 6.

**Prāṇavaha–Rasavaha Śrotasa**

Formulations containing karavīra indicated for internal use in the management of various diseases of Prāṇavaha–Rasavaha Śrotasa are presented in Table 7. Six formulations are indicated as Vājikaraṇa (aphrodisiacs), and two in Rājāyakṣamā (tuberculosis). One formulation each in Svāsa (asthma), Kāsa (cough) and as Rasāvaya (rejuvenation). Mūla (root) as part has found maximum use followed by Puspa (flower). In dosage form, Rasa Kalpanā (8) were found maximum followed by Gutikā (2).

**Manovaha Śrotasa**

Formulations containing karavīra indicated for internal use in the management of various diseases of Manovaha Śrotasa are presented in Table 8. Two formulations are indicated in Śīrogra (head disease) and one formulation in Madātyaya (alcoholism). Puspa (flower), Bīja (seed), and Mūla (root) are parts being used. Gutikā is the maximum dosage form found in the management of Manovaha Śrotasa.
Table 3: Classification of karavīra in various Sarṇihītā, Nighaṇṭu, and Rasa grantha

| S. no. | Varga (classification/group/section) | Classical texts/nighaṇṭu |
|--------|------------------------------------|--------------------------|
| Based on first drug of the group (Alphabetical classification) |
| 1      | Abhayādīvarga                       | Madanapāla nighaṇṭu62    |
| 2      | Chandanādīvarga                     | Sarasavati nighaṇṭu64    |
| 3      | Guducyādī varga                     | Bhāvaprakāśa nighaṇṭu45, Śāligrāma nighaṇṭu69 |
| 4      | Haritakyādī varga                   | Priya nighaṇṭu72         |
| 5      | Karavirādī Varga                    | Dhanavanatari nighaṇṭu55, Śoḍhala nighaṇṭu57, Rāja nighaṇṭu66 |
| 6      | Kutajādī varga                      | Nighaṇṭu ādāra51          |
| 7      | Lākṣādī gana                        | Suśruta sarṇihītā, Aṣṭāṅga sarṇgraha, Aṣṭāṅga hṛdaya6 |
| 8      | Mulakādī varga                      | Rāja nighaṇṭu66           |
| 9      | Śālyādīvarga                        | Rāja nighaṇṭu66           |
| 10     | Suvarṇādīvarga                      | Dhanavanatari nighaṇṭu55  |

Based on Rasa (taste) of the drug (phytochemical)  
11 Kaṭu Skandha                                    Abhidhāna ratnamālā59
12 Tikta Skandha                                   Caraka sarṇihītā, Suśruta sarṇihītā, Abhidhāna ratnamālā59

Based on the color of the drug  
13 Pīta Varga                                      Brḥat Rasarāja Sundara40

Based on karma (action) of the drug (pharmacological)  
14 Dāhasamanārtha Dhārāṛgha Sayan                  Suśruta sarṇihītā1
15 Deha Lauhā Sidhiprāda                            Rasa Prakāśa Sudhākara28
16 Kanḍuṅgha Vṛkṣa                                  Bṛhla sarṇihītā7
17 Kuṣṭhaghaṇa mahākaśaya                           Caraka sarṇihītā1
18 Sarṣodhana-Sarṣāmana                              Varṇgasena12
19 Śīrovirecaka Dravya                               Suśruta sarṇihītā3
20 Sthāvara Viṣa                                     Kāiyadeva nighaṇṭu63
21 Upaviṣa gana                                      Dhanavanatari nighaṇṭu55, Bhāvaprakāśa nighaṇṭu65

Based on the habit in the drug  
22 Kṣupa Varga                                      Sarasavati nighaṇṭu64
23 Vṛṣakānda                                       Nighaṇṭu śeṣa58
24 Viṣa vrkṣa                                       Abhidhāna manjari70

Based on the parts used in the drug  
25 Mūlātva sārāni                                    Vaidya Cintāṁṇi21
26 Puṣpa Gaṇa                                        Arka Prakāśa38
27 Puṣpadhāraṇa vidhi                                Ānanda Kaṇḍa31
28 Mūla viṣa varga                                   Caraka sarṇihītā, Suśruta sarṇihītā3

Based on the major use of the drug  
29 Auṣadha Varga                                     Kāiyadeva nighaṇṭu63
30 Dhātu Varga                                       Kāiyadeva nighaṇṭu63
31 Divya Auṣadhi                                     Rasa Prakāśa Sudhākara28
32 Pāṇīya Varga                                      Śoḍhala nighaṇṭu57
33 Vanauṣadhi Varga                                  Amarkośa52
34 Vīhāra Varga-Dantdhāvana                           Kāiyadeva nighaṇṭu63
35 Vividhauṣadhi Varga                               Mādhava dravyagunap60

Others (according to contents of the text)  
36 Auṣadhaśrīpariccheda                               Rājavallabha nighaṇṭu68
37 Ekpāda varga                                      Hṛdayadipaka nighaṇṭu61
38 Prābhāti pariccheda                                Rājavallabha nighaṇṭu58
39 Prakīrṇa Varga                                    Mādhava dravyagunap60
40 Sarṇikīrṇa Varga                                  Abhidhāna manjari70
41 Varṣārṭucaryā                                     Ānanda Kaṇḍa31
42 Viprakīrṇa Varga                                  Aṣṭāṅga nighaṇṭu53
### Table 4: Rasādipāñcaka of karaviṣa as reported in various nighanṭus (lexicons)

| S. no. | Rasa(śvetā) | Guṇa | Virya | Vipāka | Doṣakarma |
|--------|-------------|------|-------|--------|-----------|
| 1      | Kaṭu<sup>142</sup> | Laghu<sup>51,53,63,65,69</sup> | Usṇa<sup>51,53,63,65,69</sup> | Kaṭu<sup>51,65</sup> | KaphaVātahara<sup>69</sup> |
| 2      | Tikta<sup>31</sup> | Tikṣṇa<sup>66,69</sup> |   |   | |
| 3      | Kaṭāya<sup>63,65,69,74</sup> |   |  |  | |

### Table 5: Karma (action) of karaviṣa as reported in various nighanṭus (lexicons)

#### Annavaha-Puṣivala Śrotasa

- Raktavaha Śrotasa
  - Kuṣṭhaḥarpa<sup>35,60,65</sup>/Kuṣṭhaḥara (śvetā)<sup>65</sup>/Kuṣṭhara (rakta)<sup>96</sup>/Kuṣṭha (śvetā)<sup>96</sup>/Lepādkuṣṭhanāśaka (rakta)<sup>96</sup>/Kuṣṭhaghaṇa udvartanaraka<sup>24</sup>/Vṛṇāpaha<sup>35,62,65</sup>/Vṛṇālāghava<sup>65</sup>/Dustavṛṇāpaha<sup>40</sup>/Vṛṇāśamaṇa (śvetā)<sup>65</sup>/Vṛṇāpaha (rakta)<sup>96</sup>/Vṛṇā (śvetā)<sup>69</sup>/Vṛṇāpaha (śvetā)<sup>63</sup>/Kandu<sup>62,65</sup>/Kandu (<rakta>)<sup>63</sup>/Kandu (<śvetā>)<sup>63</sup>/V śphotaśāmanava (śvetā)<sup>65</sup>/Vśphota (śvetā)<sup>69</sup>/Tvakadoṣa (rakta)<sup>66</sup>

- Mūtravaha Śrotasa
  - Prameha (śvetā)<sup>69</sup>

- Sāmānya Sansthāna vyādhi
  - Jvarāpaha<sup>51,55</sup>/Jvara (<śvetā>)<sup>69</sup>/Cakṣusya<sup>35</sup>/Cakṣusya (rakta)<sup>63</sup>/Netrayo (<śvetā>)<sup>69</sup>/Netrakopa,<sup>62</sup><sup>65</sup><sup>69</sup>

- Pharmacovigilance
  - Bhaṅgādi <rakta><sup>Vṛṇā</sup></rakta>/Bhaṅgādīvīṣṭarpa<sup>25,62,66</sup>/Bhaṅgādīvīṣṭarpa <rakta><sup>Vṛṇā</sup></rakta><sup>63</sup>(poisonous if consumed orally);
  - Aśvamṛtippada (śvetā)<sup>66</sup>/Aśvamāra (śvetā)<sup>65</sup>(poisonous to horses)

- Others
  - Viśāsamaṇa (śvetā)<sup>65</sup>/Viśapaha (rakta),<sup>63</sup><sup>66</sup>Viśodhaka (rakta),<sup>65</sup><sup>69</sup>Kaphavatāhara śvetā<sup>69</sup>/Kaphavatānāśaka (gulābī)<sup>69</sup>/Kaphavatāhara (pīta)<sup>69</sup>/Pavitra<sup>74</sup>/Pāpahā<sup>74</sup>

### Table 6: Formulations containing karaviṣa indicated for internal use in Annavaha-Puṣivala Śrotasa disorders

| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|--------|--------------|--------------|------------|----------|-----------|
| 1      | Cavyādi Gṛtha<sup>5</sup> | Gh | Grahaṇi | Asvamāra | Patra |
| 2      | Lohasāra kalpa<sup>36,43</sup> | K | Sarngrahaṇi | Karavira | Mūla (śvetā) |
| 3      | Mahadagni Gṛtarm<sup>12</sup> | Gh | Sarngrahaṇi | Karavira | Patra |
| 4      | Mahāsūlagajākeśari Rasi<sup>36</sup> | Rk | Sūla | Aśvāri | Mūla (śvetā) |
| 5      | Sūlagajākeśari Rasi<sup>43</sup> | Rk | Sūla | Aśvāri | Mūlatvaka (śvetā) |
| 6      | Trpāsāgara Rasi<sup>40</sup> | Rk | Atisāra | Hayamāra | Mūla Svarasa |
| 7      | Vāriniyada Guti<sup>36,43</sup> | Gt | Atisāra | Karavira | Mūla (śvetā) |
| 8      | Aśvamāraādī Agada<sup>4</sup> | Ag | Sannipātaka Udara | Aśvamāra | Mūla |
| 9      | Gunjādi Svarasa<sup>5</sup> | Sv | Udār roga | Karavira | Mūla |
| 10     | Kāriṇkāra (single drug)<sup>6</sup> | K, Cr, Sv | Piliḥ | Kāriṇkāra | – |
| 11     | Kāriṇkāra Tail<sup>6</sup> | TI | Piliḥ (Katutta kalpa) | Kāriṇkāra | Tvaka |
| 12     | Kanakgiri Rasi<sup>43</sup> | Rk | Aghimāndhya | Ahimāra | – |
| 13     | Kanakgiri Rasi<sup>43</sup> | Rk | Gudā roga | Ahimāra | – |
| 14     | Lākṣādi Varga<sup>1,17,46</sup> | Kṛmi | Aśvamāra | – |
| 15     | Kāriṇkāra Svarasa<sup>42</sup> | Sv | Virecana | Kāriṇkāra | Patra (pīta) |
| 16     | Mahābalvidhanābhrakam<sup>17</sup> | Cr | Sarṇāṣodhana | Raktāśvamāra | Mūla |

### Table 7: Formulations containing karaviṣa indicated for internally use in Prāṇavaha–Rasavaha Śrotasa disorders

| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|--------|--------------|--------------|------------|----------|-----------|
| 1      | Bhāṅgādi Vati<sup>18</sup> | Gt | Vājikarana | Aśvāji | – |
| 2      | Kāmādeva Rasi<sup>43</sup> | Rk | Vājikarana | Śvetahayāri | Mūlatvaka, Svarasa |
| 3      | Īkeśvari Vati<sup>43</sup> | Gt | Vājikarana | Hayāri | Mūla (śvetā) |
| 4      | Madākānāmevaha Rasi<sup>42,43</sup> | Rk | Vājikarana | Karavira | Mūla Svarasa |
| 5      | Purṇendu Rasi<sup>43</sup> | Rk | Vājikarana | Aśvāri | Svarasa |
| 6      | Yuvatillā Rasi<sup>43</sup> | Rk | Vājikarana | Raktāśvamāra | Puṣpa |
| 7      | Bṛhadśayakeshari Rasi<sup>15,46</sup> | Rk | Rājyakṣamā | Hayamāra | Mūla |
| 8      | Kṣayakeshari Rasi<sup>35,40,43</sup> | Rk | Rājyakṣamā | Hayamāra | – |
| 9      | Kaphakunja Rasi<sup>40</sup> | Rk | Svāsā, Kāsa | Karavira | – |
| 10     | Mahābalavidhanābhraka Rasi<sup>43</sup> | Rk | Rasāyana | Raktāśvamāra | Puṣpa |
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Vātavaha Śrotasa
Formulations containing karavīra indicated for internal use in the management of various diseases of Vātavaha Śrotasa are presented in Table 9. Two formulations each are indicated in the management of Vātarakta (gout) and Sparśavāta, and one in Vātavyādhi (neuromuscular anomalies). Mūlatvaka (root–bark) are found in maximum formulations. Among all, Rasa kalpana (4) is the maximum dosage form found in the management of Vātavaha Śrotasa.

Mūtravaha Śrotasa
Formulations containing karavīra indicated internally in the management of various diseases of Mūtravaha Śrotasa are presented in Table 10. Only single formulation found in the management of Aśmari (calculi) in Kṣāra dosage form.

Sāmānya Sansthānika Vyādhī
Formulations containing karavīra indicated internally in the management of various diseases of Sāmānya Sansthānika Vyādhī are presented in Table 11. Sixteen formulations are indicated in the management of Kuṣṭha (disease of skin), 7 in Jvara (fever), 4 in Viṣṇu (poison), and 2 in Viṣārpa (erysipelas). Other indications one each in the management of Pānḍu (anemia), Sarva roga (all diseases), Vrana (wound), Raktaapradar (menorrhagia). Mūla (roots) are found to be used in maximum formulations and Rasa kalpanā (20) are found in the maximum dosage forms.

External Application
The formulations containing karavīra as an ingredient used externally to manage different diseases are presented in Table 12. Maximum formulation, i.e., 42 are used in Kuṣṭha (disease of skin) followed by 15 in Śvitra (leukoderma), 12 in Vrana (wound), 10 in Upadmaśa (syphilis), 9 in Arśa (piles), Bhagandar (fistula-in-ano), 8 in Indralupta (alpacia), and 7 used in Netra roga (eye disease); 5 each in Vātavyādhi (neuromuscular anomalies), Viṣa cikitsā (treatment of poison), Āṇḍamāla (cervical lymphadenitis), Pālīṭya (graying of hair), and Śīrōroga (disease of head); 5 formulations each in Jvara (fever), Pāṃma (eczema), Dadru (taeniasis), and Vajikaraṇa (aphrodisiac property); 3 formulations each in Apāci (chronic lymphadenopathy), Arbuda (tumor), Nāsāroga (nasal disease) and Vātarakta (gout); 2 formulations each in Vicārīkā (skin disease), Carmdala (exfoliative dermatosis), Yoniḍroga (diseases of female genital tract), and Graha roga (idiopathic diseases); one formulation each in Prameha (diabetes), Udarroga (disease of abdomen), Unmāda (psychosis), Madātyaya (alcoholism), Kṛmi (worm infestation), Bālaro (pediatric disease), Vidradhi (abscesses), Viṣaṣpa (erysipelas), Sopha (inflammation), Kikāsā (saria gravidum), Strīroga (gynecological disease), Kaḥālītya (hair fall), Lomāśātānāra (hair removal), Kaṅcchu (skin disease), Dārunaka (skin disease), Viṣphota (blister), Dantarataro (disease of tooth), Tālupāka, Klaivya (male impotence), Kaṃp (tremor), Aśepocha (convulsions), Sparśavāta, Snāyukarogā (disease of ligament), Sarvarogā (all diseases).

Mūla (roots), as part has found use in maximum (75) formulations followed by Mūltvaka (root–bark), Pāṭrā (leaf), Pūṣpa (flower), and Tvaka (bark).

Both External as well as Internal Application
It is observed that some formulations containing karavīra are having both external and internal indications. Among these, four formulations are indicated in Kuṣṭha (skin disease), two in the management of Viṣa cikitsā (treatment of poison), and one formulation each in Vrana (wound), Pāṃma (eczema), Vicārīkā (skin disease), and Apāci (chronic lymphadenopathy) (Table 13).

On keen observation, it is noted that in all referred texts, karavīra has been used as an ingredient in 472 formulations. After omitting the repeated ones, 222 formulations were scrutinized, among them 154 formulations have external uses, 61 formulations have internal uses, and 7 formulations have both external and internal uses. Among these formulations, maximum dosage forms, 65 as Taila (Tl) (oil) followed by 54 as Lepa (Lp) (topical application), 36 as Rasa kalpanā (Rk) (mercurial preparation), 19 as Kvātha (Kv) (decoction), 7 as Ghṛṣṭa (Gh) (medicated ghee), 7 as Cūrṇa (Cr) (powder), 6 as Svarasa (Sv) (juice), 5 as Guttikā (Gt) (pill), 4 as Aṣṭada (Ag) (collyrium), 2 as Kṣāra (alkaline preparation), 2 as Dhūma (Dh), 1 as Vṛti (Vr), 1 as Arka (Ar) and 1 as Ghana (Gh). Taila was found to have approximately 29% and Lepa was found to have 24.3% formulations having karavīra as an ingredient.

It is evident from the formulations noted in various classical texts of Āyurveda that karavīra, due to its medicinal properties, is used in the treatment of Kuṣṭha (disease of skin) (58), Śvītra (leukoderma) (15), Vrana (wound) (13), Jvara (fever) (11), Upadmaśa

| Table 8: Formulations containing karavīra indicated for internal use in Manovahā Śrotasosa disorders |
|-------------|-----------------|-----------------|-----------------|-----------------|
| S. no. | Formulations | Dosage forms | Indication | Synonyms |
| 1 | Jyotirayadi Vati | Gt | Sirṣvedanā | Karavīra |
| 2 | Rascandrikā Vati | Gt | Śīrōroga | Ijāl |
| 3 | Lalithanātha Rasa | Rk | Madātyaya | Karavīra |

| Table 9: Formulations containing karavīra indicated internally in Vātavaha Śrotasosa disorder |
|-------------|-----------------|-----------------|-----------------|-----------------|
| S. no. | Formulations | Dosage forms | Indication | Synonyms |
| 1 | Sarveśvara Rasa | Rk | Vātarakta | Hayāri |
| 2 | Vīśveśvara Rasa | Rk | Vātarakta | Aśvamāra |
| 3 | Bhūthanātha Rasa | Rk | Sparśvāta | Hayāri |
| 4 | Sarveśvara Rasa | Rk | Sparśvāta | Hayāri |
| 5 | Šephahayādi Arka | Ar | Vātanāśaka | Aśvamāra |

| Table 10: Formulations containing karavīra indicated internally in Mūtravaha Śrotasosa disorder |
|-------------|-----------------|-----------------|-----------------|-----------------|
| S. no. | Formulations | Dosage forms | Indication | Synonyms |
| 1 | Karavīra Kṣāra | Kṣāra | Aśmari | Karavīra |
### Table 11: Formulations containing Karavīra indicated internally in Sāmānya Sansthānika vyādhī disorders

| S. no. | Formulations                          | Dosage forms | Indication | Syonyms | Part used         |
|--------|---------------------------------------|--------------|------------|---------|-------------------|
| 1      | Agnibhadro Rasa 36                    | Rk Kuṣṭha   | Hayamāra   | Mūla    |                   |
| 2      | Ārāghvadhādi Kvātha 8,15              | Kv Kuṣṭha   | Karnīkāra  | Mūlātvaka|                   |
| 3      | Haritāleśvāra Rasa 5,35              | Rk Kuṣṭha   | Karavīra   | Mūla    |                   |
| 4      | Jyotisāmanī Rasa 43                   | Rk Kuṣṭha   | HayāapriyamMūla (Śveta)|         |
| 5      | Khaḍirādi Gṛha 8                     | Gh Kuṣṭha   | Karnīkāra  | Tvaka    |                   |
| 6      | Kuṣṭhagha Mahākāśāya 1              | Kv Kuṣṭha   | Karavīra   | –        |                   |
| 7      | Kuṣṭhānkuśo Rasa 36,40,43            | Rk Kuṣṭha   | Karavīra   | Tvaka    |                   |
| 8      | Lākṣādi Varga 12,17,46               | Rk Kuṣṭha   | Aśvamāra   | –        |                   |
| 9      | Mahākāśāya 17                        | Kv Kuṣṭha   | Karavīra   | –        |                   |
| 10     | Māṇikya Rasa 15,17,34,35,40,43,46    | Rk Kuṣṭha   | Hayamāra   | Mūlātvaka|                   |
| 11     | Rasendramangala Rasa 33,36,43        | Rk Kuṣṭha   | Tvacā ŚvetaMūla tvaka |         |
| 12     | Sarveśvara Rasa 12,17,21,29,33,36,37,43 | Rk Kuṣṭha   | Hayāri Mūlātvaka Mūla Svarasa (Śveta)|         |
| 13     | Tālkēśvara Rasa 32,36,43             | Rk Kuṣṭha   | Karavīra   | Mūlasvarasa|                   |
| 14     | Tālantreśvāro Rasa 36,43             | Rk Kuṣṭha   | Hayāri Mūla |         |
| 15     | Viśveśvara Rasa 16,44,18,36,37,41    | Rk Kuṣṭha   | Aśvamāra   | Mūlātvaka|                   |
| 16     | Yogarāja Rasāyana 4                  | Gh Kuṣṭha   | Karavīra   | –        |                   |
| 17     | Jvarānkuśa Rasa 43                   | Rk ViṣamjvaraSenā| –        |         |
| 18     | Kalāgnirudro Rasa 36,40,43           | Rk Jvara    | Karavīra   | Svarasa (Śveta)|         |
| 19     | Mṛtyunjaya Rasa 43                   | Rk Jvara    | Karavīra   | Svarasa |                   |
| 20     | Sannipātānāla Rasa 40                | Rk Sannipāta jvara | Karavīra Mūla Svarasa|         |
| 21     | Sarvasiddhiprada Rasa 43             | Rk Jvara    | Aśvamāra   | –        |                   |
| 22     | Trailokayacintāmaṇi Rasa 15,40,43    | Rk Jvara    | Karavīra   | Mūla (Śveta)|         |
| 23     | Trailokyādarṇbara Rasa 32,43         | Rk Sannipāta jvara | Karavīra Puśpa (Śveta) Svarasa|         |
| 24     | Arkamulādi Curna 17,33              | Cr GonaśvīṣaAśvamāra | –        |         |
| 25     | Bhirūdra Rasa 15,46                  | Rk SarpadaṣṭaHayamāra Mūla |         |
| 26     | Halini Yoga 8                       | Gl Kuṣṭha   | Karavīra   | –        |                   |
| 27     | Yāpānīkhyā agada 4                  | Ag Viṣacikitsā | Aśvamāra | –        |                   |
| 28     | Pratāplarṇikesvāra Rasa 17,36,43    | Rk Pāndu    | Haya Mūla |         |
| 29     | Lahuśindurāṇi 43                    | Rk SarvarogaHayamāra Puśpa (Rakta)|         |
| 30     | Lākṣādi Varga 12,17,46              | Rk Vṛnausadhhi Aśvamāra | –        |         |
| 31     | Utpalādi Curna 15                   | Cr RaktapradarKaravīra Mūla (Rakta)|         |

### Table 12: Formulations containing Karavīra indicated for externally application in various diseases conditions

| S. no. | Formulations                          | Dosage forms | Indication | Syonyms | Part used         |
|--------|---------------------------------------|--------------|------------|---------|-------------------|
| 1      | Āragvadhapatra Udhhvarton 13          | Lp Kuṣṭha   | Aśvaghnā   | Patra   |                   |
| 2      | Aśvamāra Lepa 3                       | Lp Kuṣṭha   | Aśvamāra Mūla |         |
| 3      | Brhanmārīcāda Taila 8,10,14,21,36     | Ti Kuṣṭha   | Karavīra Mūla |         |
| 4      | Caturānguladala Pralepa 10,11,17      | Lp Kuṣṭha   | Aśvahna Patra |         |
| 5      | Citrāka Taila 36                      | Ti Kuṣṭha   | Hayamāra |         |
| 6      | Citrakādi Taila 4,12,14               | Ti Kuṣṭha   | Šubhrāṣya Karavīra Svarasa|         |
| 7      | Danṭyādi Lepa 4,12,17                 | Lp Kuṣṭha   | Karavīra Mūla |         |
| 8      | Dārvyādikāṣāyaṣṭakam 17               | Kv Kuṣṭha   | Aśvamāra |         |
| 9      | Haridrādi Lepa 1                      | Lp Kuṣṭha   | Hayamāra Mūlātvaka |         |
| 10     | Karavīra Arka 18                      | Ar Kuṣṭha   | Karavīra | –        |                   |
| 11     | Karavīra Taila 1,3,17                 | Ti Kuṣṭha   | Karavīra Patra, Mūla Svarasa |         |
| 12     | Karavirādi Lepa 4,5,12,17,47         | Lp Kuṣṭha   | Karavīra Mūla (Śveta) Patra, Puśpa, Mūlātvaka (Rakta)|         |
| 13     | Karavirādi Taila 8,12,14,15,17,19,21,22,37,45 | Ti Kuṣṭha | Karavīra Mūla, Patra (Śveta), Mūlātvaka, Puśpa. |         |
| 14     | Kārnīkārādi Lepa 32                   | Lp Kuṣṭha   | Karnīkār Puśpa |         |
| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|-------|--------------|--------------|------------|----------|-----------|
| 15    | Khadirādi Kaṣāya⁴ | Kv | Kuṣṭha | Karavīra | Patra |
| 16    | Kuṣṭhādi Taila¹,5,17 | Ti | Kuṣṭha | Aśvamāra | – |
| 17    | Kuṣṭhaharitāleśvar Rasa¹²,24,40,46 | Rk | Kuṣṭha | Karavīra | Mūlatvaka |
| 18    | Kuṣṭhār Taila⁹⁹ | Ti | Kuṣṭha | Aśvamāra | Mūla |
| 19    | Laghumaricādyā Taila¹⁴,36 | Ti | Kuṣṭha | Aśvārī | Mūla |
| 20    | Laghuviṣagarbha Taila¹⁴,17,21,36 | Ti | Kuṣṭha | Hayārī | Mūla |
| 21    | Mahātnāka Taila¹⁰,15,17 | Ti | Kuṣṭha | Hayamāra | Mūlatvaka |
| 22    | Mahāvajraka Taila³ | Ku | Kuṣṭha | Karavīra | |
| 23    | Manahśilādi Lepa⁴,10,17 | Lp | Kuṣṭha | Karavīra | Mūla |
| 24    | Pṛthvisāra Taila¹⁰,15,17 | Ti | Kuṣṭha | Hayamāra | Mūlatvaka |
| 25    | Samudraphenādi Lepa³ | Lp | Kuṣṭha | Aśvamāra | Mūla |
| 26    | Śatahayādi Lepa¹,4,10 | Lp | Kuṣṭha | Karavīra | – |
| 27    | Śveṣṭākādi Lepa⁹ | Lp | Kuṣṭha | Karavīra | – |
| 28    | Siddhārta Taila¹¹,17 | Ti | Kuṣṭha | Karavīra | Mūlatvaka |
| 29    | Śilādi Lepa²⁹ | Lp | Kuṣṭha | Kaner/Raktamaṇdal | Patra |
| 30    | Sindurādi Lepa¹⁵ | Lp | Kuṣṭha | Karavīra | Mūlatvaka |
| 31    | Somarāji Taila¹⁵ | Ti | Kuṣṭha | Aśvamāra | Mūlatvaka |
| 32    | Śvetakaravirādi Lepa¹,4,5,14,15 | Lp | Kuṣṭha | Śvetakaravirā | Mūla |
| 33    | Śvetāśmārādi Lepa²² | Lp | Kuṣṭha | Śvetāśvamāra | Mūlatvaka |
| 34    | Tritiyamaricādyā Taila¹² | Ti | Kuṣṭha | Karavīra | – |
| 35    | Tuthādi Lepa³,32,36 | Lp | Kuṣṭha | Hayārī | Patra, Mūla Tvaka |
| 36    | Vajrā Taila³–⁵,14 | Ti | Kuṣṭha | Karavīra | Mūla |
| 37    | Vajraka Taila⁹,11,12,15 | Ti | Kuṣṭha | Karavīra | Mūlatvaka |
| 38    | Vidangādi Taila⁴⁷ | Ti | Kuṣṭha | Karavīra | Tvaka (Pita) |
| 39    | Vṛśādi Kaṣāya¹ | Kv | Kuṣṭha | Karavīra | Patra |
| 40    | Āśvahādi Lepa²² | Lp | Maṇḍala Kuṣṭha | Āśvahā | Mūlatvaka (Śveta) |
| 41    | Nimbādi Lepa¹²,14,17 | Lp | Sidhma Kuṣṭha | Śvetakaravirā | Mūlatvaka |
| 42    | Śvetakaravirādya Taila¹,9–12,17,47 | Ti | Sidhma Kuṣṭha | Śvetakaravirā | Mūlatvaka |
| 43    | Arṅkolādi Lepa¹¹ | Lp | Śvitra | Karavīra | Mūla |
| 44    | Kākodumarādi Lepa²² | Lp | Śvitra | Hayamāra | Mūla |
| 45    | Kaṣṭhoudumberpamādi Lepa¹¹ | Lp | Śvitra | Hayamāra | – |
| 46    | Katukādyā Taila¹² | Ti | Śvitra | Hayamāra | – |
| 47    | Laghumaricādyā Taila¹⁴,36 | Ti | Śvitra | Aśvārī | Mūla |
| 48    | Laksādi Taila¹²,29 | Ti | Śvitra | Aśvamāra | Mūla |
| 49    | Lodhrā Lepa³ | Lp | Śvitra | Aśvaghna | Bija |
| 50    | Mūtriṅkarāsriyā⁴ | G | Śvitra | Hayamāra | – |
| 51    | Śatahayādi Lepa¹,4,10 | Lp | Śvitra | Karavīra | – |
| 52    | Śvitravadrurhāra Lepa³⁸,35,40 | Lp | Śvitra | Aśvamāra | Mūlatvaka |
| 53    | Śvitrarahā Taila²² | Ti | Śvitra | Hayamāraak | Mūla |
| 54    | Śvitrānāṣaka Lepa¹⁷ | Lp | Śvitra | Aśvaḥntro | Bija |
| 55    | Tuthādi Lepa³,32,36 | Lp | Śvitra | Hayārī | Patra, Mūla Tvaka |
| 56    | Viṣa Taila⁹–¹¹,14,15,29 | Ti | Śvitra | Karavīra | Mūlatvaka |
| 57    | Viṣādi Lepa²² | Lp | Śvitra | Karavīra | Mūla |
| 58    | Citrīvādi Lepa¹,10,12–15,17 | Lp | Vraṇa | Hayamāraaka | Mūla |
| 59    | Citraṇādi Lepa⁶ | Lp | Vraṇa | Karavīra | Mūla |
| 60    | Karanādi Lepa¹²,36 | Lp | Vraṇa Darana | Vajmāraka | Mūla |
| 61    | Karavīra Kalka⁴⁹ | K | Duṣṭa Vraṇa | Karavīra | Patra |
| 62    | Mahāmaricādi Gṛṛṭa³² | Gh | Gṛṛṭivraṇa | Karavīra | Mūla |
| 63    | Manahśilādi Taila¹,4,15 | Ti | Vraṇaropana | Karavīra | Mūla |
| 64    | Nimbādi Lepa¹²,14,17 | Lp | Kṛṛṭivraṇa | Śvetakaravirā | Mūlatvaka |
| 65    | Nimbādīhāvana Yoga¹⁴ | Kv/K | Kṛṛṭivraṇa | Aśvamāra | – |

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| S. no. | Formulations                                      | Dosage forms | Indication          | Synonyms            | Part used               |
|--------|---------------------------------------------------|--------------|---------------------|---------------------|-------------------------|
| 66     | Nyogradhādi Kaśāya 1,14                            | Kv           | Vṛṇaropaṇa          | Karavīra            | –                       |
| 67     | Śankhinyādi Kaśāya 3                               | Kv           | Vṛṇa               | Karavīra            | –                       |
| 68     | Śvetakaravīrādi Lepa 1,4,5,14,15                   | Lp           | Vṛṇa               | Śvetakaravīra       | Mūla                   |
| 69     | Vajraka Taila 9,11,12,15                           | Ti           | NāḍīVṛṇa           | Karavīra            | Mūlātvaka               |
| 70     | Bṛṅgārāja Lepa 36                                  | Lp           | Upadānāśa          | Karavīra            | Svarasa                 |
| 71     | Japādi Prakṣālana Kvāthā 9                        | Kv           | Medhapāka          | Aśvamāra            | –                       |
| 72     | Jātyādi Kvāthā 17                                  | Kv           | Upadānāśa          | Aśvamāra            | Patra                   |
| 73     | Jayādi Lepa 11                                    | Lp           | Upadānāśa          | Karavīra            | Mūlātvaka               |
| 74     | Jayāpatrādi Kvāthā 10,14,15,21                     | Kv           | Upadāmṣa,           | Aśvamāra            | Patra                   |
|        |                                                    |              | Medhapāka          |                     |                         |
| 75     | Karavīra Lepa 1,10,12,3,1,22,45                    | Lp           | Upadāmṣavṛṇa       | Karavīra            | Mūla                   |
| 76     | Karavīrādi Kaśāya 3,11                            | Kv           | Upadāṃśavṛṇa       | Karavīra            | Patra (Śveta)           |
| 77     | Lepa for Upadāṃśa 41                               | K            | Upadāṃśa           | Karavīra            | Mūla                   |
| 78     | Pārādādi Lepa 43                                   | Lp           | Upadāṃśa           | Kādāvīra            | Mūlātvaka (Rakta, Śveta) |
| 79     | Pugaphalādi Lepa 15                                | Lp           | Upadāṃśa           | Aśvamāra            | Mūlātvaka               |
| 80     | Arśhar Taila 32                                    | Ti           | Arṣa               | Hayamāraka          | Mūlātvaka               |
| 81     | Bṛhadkāsisādya Taila 12,15                         | Ti           | Arṣa               | Aśvamāra            | Mūla                   |
| 82     | Dantyādi Taila 11,12,17                            | Ti           | Arṣa               | Karavīra            | Mūla                   |
| 83     | Karavīrādi Kaśāya 3,11                            | Kv           | Arṣa               | Karavīra            | Patra (Śveta)           |
| 84     | Kāsisādi Taila 4,5,12,13,15,17,36,47               | Ti           | Arṣa               | Aśvahā              | Mūla                   |
| 85     | Laghukāsisādya Taila 17                            | Ti           | Arṣa               | Karavīra            | –                      |
| 86     | Mahākāsāra 12,17                                   | Kṛṣa         | Arṣa               | Karavīra            | Tvaka                  |
| 87     | Mahānimbādi Taila 11,19                            | Ti           | Arṣa               | Hayāri              | Patra                   |
| 88     | Vacādi Lepa 5                                     | Lp           | Arṣa               | Aśvaghna            | Patra                   |
| 89     | Bhīṣyandana Taila 4,11,14,15,17                     | Ti           | Bhagandara         | Hayamāraka          | Mūlātvaka               |
| 90     | Citrākādi Taila 4,11,14,14                         | Ti           | Bhagandara         | Śubhārasya Karavīra | Svarasa                 |
| 91     | Jyotismatyādi Taila 5                              | Ti           | Bhagandara         | Karavīra            | –                      |
| 92     | Karavīra Lepa 1,10,12,13,13,22,45                  | Lp           | Bhagandara         | Karavīra            | Mūla                   |
| 93     | Karavīrādi Taila 8–12,14,15,17,19,21,22,37,45      | Ti           | Bhagandara         | Karavīra            | Mūla, Patra (Śveta),  Mūlātvaka, Puṣpa |
| 94     | Niśādya Taila 10,12,15                             | Ti           | Bhagandara         | Aśvaghna            | Tvaka                  |
| 95     | Syandana Taila 3,17,21                              | Ti           | Bhagandara         | Hayamāra            | Mūlātvaka               |
| 96     | Trvṛtādi Taila 3,4                                 | Ti           | Bhagandara         | Aśvamāra            | Mūla                   |
| 97     | Visayandana Taila 9,10,12                          | Ti           | Bhagandara         | Hayamāraka          | –                      |
| 98     | Citrākādi Taila 4,11,14,14                         | Ti           | Indralupta         | Śubhārasya Karavīra | Svarasa                 |
| 99     | Hartālādi Lepa 37                                   | Lp           | Indralupta         | Karavīra            | –                      |
| 100    | Jātyādi Taila 3,11,14,17,36                        | Ti           | Indralupta         | Karavīra            | Pitamūlātvaka           |
| 101    | Karanjādi Taila 3,17                                | Ti           | Indralupta         | Karavīra            | Patra                   |
| 102    | Karavīra Svarasa 5,9,10,12,15,45                    | Sv           | Indralupta         | Karavīra            | Patra                   |
| 103    | Kutnattādi Lepa 10                                 | Lp           | Indralupta         | Karavīra            | Mūla                   |
| 104    | Mālātyādi Taila 9,10,12,15,17                       | Ti           | Indralupta         | Karavīra            | Mūla                   |
| 105    | Manahśilādi Taila 4,15                             | Ti           | Indralupta         | Karavīra            | Mūla                   |
| 106    | Giriṃrankyāksipuranā Kalka 17                      | K            | Aḵśhipuṣpa         | Śvetādri            | Mūla                   |
| 107    | Karavīra Svarasa 5,9,10,12,15,45                    | Sv           | Nettābhisyandya    | Karavīra            | Patra                   |
| 108    | Karavīra yoga Svarasa 37                           | Sv           | Nettāpīdā          | Śvetakaravīra       | Puṣpa                   |
| 109    | Karavīrādi Yoga 3                                  | An           | Nettakopā          | Karavīra            | Patra (Agrapallava)     |
| 110    | Śvetakaravīra Ras 11,17,33                         | Sv           | Nettakopā          | Śvetakaravīra       | Puṣpa, Patra            |
| 111    | Tālātyādi Yoga 11                                  | An           | Netraśūkra         | Karavīra            | Tvaka                  |
| 112    | Tāmbulādi Anjana 11                                | An           | Nettakopā          | Karavīra            |                         |
| 113    | Dhaturādi Taila 13                                 | Ti           | Vātaroga           | Karavīra            | Mūla                   |
| 114    | Laghuvīṣagarbhā Taila 14,17,21,36                   | Ti           | Vātavāyādi         | Hayāri              | Mūla                   |

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## A Review of Karavira in Classical Texts of Āyurveda

### Contd…

| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|--------|--------------|--------------|------------|----------|-----------|
| 115    | Mahānimbādi Taila | Tl | Vātavyādhi | Hayāri | Patra |
| 116    | Mahāvīṣagārgha Taila | Tl | Vātavyādhi | Karaviradvaayam | Mūla (Rakta,Pita) |
| 117    | Viṣagārgha Taila | Tl | Vātavyādhi | Karavira dvayāh | Mūlatvaka |
| 118    | Devadāryādi Anjana | An | Viṣa cikiṭṣā | Karavira | Patra |
| 119    | Karanjādi Lepa | Lp | Lūta Vṛañja | Vajimāraka | Mūla |
| 120    | Karavirādi Lepa | Lp | Viṣa Cikiṭṣā | Karavira | Mūla (Śveta) Patra, Puṣpa, Mūlatvaka (Rakta) |
| 121    | Niśāda anjana | An | Viṣajanyā netra | Aśvamāra | – |
| 122    | Śyāmādi agadh | Ag | Kaphaja Lūtā | Karavira | – |
| 123    | Gandamālādau Lepa | Lp | Gandmālā | Mūla |
| 124    | Gandamālāpahām Taila | Tl | Gandmālā | Aśvamāra | – |
| 125    | Guṇjādi Taila | Tl | Apkaya ganda | Karaira | Patra |
| 126    | Mahāvajraka Taila | Tl | Gandmālā | Karavira | – |
| 127    | Śakhotakādinimbādi Taila | Tl | Gandmālā | Aśvamāra | – |
| 128    | Bhṛṅgarāja Taila | Tl | Pālīta | Karavira | Mūlatvaka |
| 129    | Dugdhikādi Lepa | Lp | Pālīta | Karavira | – |
| 130    | Karavira Lepa | Lp | Pālīta | Karavira | Mūla |
| 131    | Karavirādi Lepa | Lp | Pālīta | Karavira | Mūla, Patra (Śveta), Mūlatvaka, Puṣpa |
| 132    | Pathyādi Lepa | Tl | Pālīta | Turangmāra | Mūlatvaka |
| 133    | Karavirādi Lepa | Lp | Śiroroga | Karavira | Mūla (Śveta) Patra, Puṣpa, Mūlatvaka (Rakta) |
| 134    | Manahśilādi Taila | Tl | Śiroroga | Karavira | Mūla |
| 135    | Nimbādi Kvātha | Kv | Śiroroga | Karavira | Patra |
| 136    | Rakta Karavirādi Lepa | Tl | Śirahsūla | Raktakaravira | Puṣpa |
| 137    | Tejovatayādi Taila | Tl | Śiroroga | Karavira | Mūla |
| 138    | Jātyādi Taila | Tl | Sannipata Jvara, | Karavira | Pitamūlatvaka |
| 139    | Karavira yoga | Tl | Jvara | Turangāri | (Rakta, Śveta) |
| 140    | Karavirādi Lepa | Lp | Jvaragata Trśā | Karavira | Mūla (Śveta) Patra, Puṣpa, Mūlatvaka (Rakta) |
| 141    | Brḥmanaricādyā Taila | Tl | Pāmā | Karavira | Mūla |
| 142    | Kaksurākṣaṣa Taila | Tl | Pāmā | Karavira | Mūla |
| 143    | Khadirādi Kaṣāya | Kv | Pāmā | Karavira | Patra |
| 144    | Mahāmaricādi Ghṛta | Gh | Pāmā | Karavira | Mūla |
| 145    | Kuṣṭhādi Curna | Cr | Dadru | Karavira | Tvaka |
| 146    | Laghumaricādyā Taila | Tl | Dadru | Asvāri | Mūla |
| 147    | Mustādi Curna | Cr | Dadru | Karavira | Tvaka |
| 148    | Tila Taila | Tl | Dadru | Asvaghna | Mūla |
| 149    | Karavirājata Lepa | Lp | Vājikaraṇa | Karavira | Mūla |
| 150    | Kuṣṭhādi Lepa | Lp | Vājikaraṇa | Turangśatro | Mūla |
| 151    | Lepa for Indriya | K | Vājikaraṇa | | Mūla (Śveta) |
| 152    | Stabhbhārī Lepa | Lp | Vājikaraṇa | Śvetāsvāmāra | Mūlatvaka |
| 153    | Apacyādi Viṣakalpa | K | Apaci | Asvamāra | Mūla |
| 154    | Guṇjādi Lepa | Lp | Apaci | Asvamāra | Mūla |
| 155    | Guṇjādi Taila | Tl | Apaci | Karavira | Patra |
| 156    | Aparājītādi Kaśāya | Kv | Arbuda | Karavira | Patra |
| 157    | Arkādi Taila | Tl | Arbuda | Karavira | Patra |
| 158    | Guṇjādi Taila | Tl | Kaphaja Arbuda | Karavira | Patra |
| 159    | Karavirādi Taila | Tl | Nasāṛśa | Karavira | Mūla, Patra (Śveta), Mūlatvaka, Puṣpa |
| 160    | Kośāmrādi Dhumavarti | Vr | Nasārogā | Ahimāra | Mūlatvaka |

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There are various dosage forms of karavīra, among which the maximum include Taila (89) and Lepa (62) dosage forms found exclusively for external uses. Details of dosage forms are presented in Table 14.

On keen observation, it was found that almost all parts of karavīra are used as an ingredients in formulations to combat various disease conditions. Mūla (root) is the maximum part being used, 75 in external formulations and 55 in internal formulations. Table 15 provides the details on karavīra part used in classical treatise and compendiums.

After keen observation of karavīra, it is observed that external uses are more than that of internal uses, which may be due to it

| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|--------|--------------|--------------|------------|----------|-----------|
| 161    | Raktakaravīra yoga¹³    | Ti           | Nāśārsha   | Raktakaravīra | Puṣpa     |
| 162    | Brhaṇmaricādyā Taila¹⁰,¹¹,¹²,¹³,¹⁴,¹⁵,¹⁶ | Ti          | Vātarakta  | Karavīra | Mūla |
| 163    | Mahāmaricādyā Taila¹⁷ | Ti          | Vātarakta  | Karavīra | –   |
| 164    | Mahārdaguducī Taila¹⁵ | Ti          | Vātarakta  | Karavīra | Mūlatvaka |
| 165    | Brhaṇmaricādyā Taila¹⁰,¹¹,¹²,¹³,¹⁴,¹⁵,¹⁶ | Ti          | Vicarīcīka | Karavīra | Mūla |
| 166    | Vicarīcīkā Taila¹³,¹⁷ | Ti          | Vicarīcīka | Aśvāmara | Mūlatvaka |
| 167    | Karavīrādi Taila¹⁸-²⁰,²¹,²²,²³,²⁴,²⁵,²⁶,²⁷,²⁸ | Ti          | Carmadala  | Karavīra | Māla, Patra (Śveta), Mūlatvaka, Puṣpa |
| 168    | Śvetakaravīrādiya Taila¹⁹-²¹ | Ti          | Carmadala  | Śvetakaravīra | Mūlatvaka |
| 169    | Hayamārādīa Taila¹⁵ | Ti          | Yonikandu  | Hayamāra | Mūla |
| 170    | Indravārūnyādī Lepa¹³ | Lp          | Yonidravaka | Raktasakaravīra | Kāḍṭha |
| 171    | Sphurjakādi Taila²⁸ | Ti          | Graha Roga | Sphurjakā | Śveta Kaner Mūla |
| 172    | Vijaya Dhūpa²⁹ | Dh          | Graha roga | Prachānda | Śveta Kaner Tāvaka |
| 173    | Vidangādi Taila¹⁴,²⁷ | Ti          | Premeha    | Karavīra | Tāvaka (Pita) |
| 174    | Mahākāḍa¹²,¹⁷ | Kāra        | Udar roga  | Karavīra | Tāvaka |
| 175    | Laśuna Taila³⁶ | Ti          | Unmāda     | Karavīra | Bīja (Pita) |
| 176    | Hvīrērādi Lepa³ | Lp          | Madātyaya  | Karavīra | Puṣpa |
| 177    | Vidangādi Taila¹⁴,²⁷ | Ti          | Kṛṣmi      | Karavīra | Tāvaka (Pita) |
| 178    | Saptachadi Lepa¹⁴ | Lp          | Bāla       | Tungārī | Mūla |
| 179    | Dantayādi Lepa⁴,¹²,¹⁷ | Lp          | Vidradhi   | Karavīra | Mūla |
| 180    | Triphalādi Lepa⁴,⁹-¹⁵ | Lp          | Kaphaja Viṣarpa | Karavīra | Mūla |
| 181    | Pulnāvādīa Lepa⁵,⁶ | Lp          | Ekāṅga Sopha | Karavīra | –   |
| 182    | Karavīra Taila¹,³,¹³,¹⁷ | Ti          | Kikkīsa     | Karavīra | Patra, Mūla Svarasā |
| 183    | Karavīrādi Taila⁸-¹⁴,¹⁵,¹⁷,¹⁹,²¹,²²,²³,²⁴,²⁵,²⁶,²⁷,²⁸ | Ti          | Śtriōga    | Karavīra | Mūla, Patra (Śveta), Mūlatvaka, Puṣpa |
| 184    | Dhurdhurūdi Taila¹⁶ | Ti          | Khaliya    | Karavīra | –   |
| 185    | Karavīra Taila¹,³,¹³,¹⁷ | Ti          | Lomśātanārtha | Karavīra | Patra, Mūla Svarasā |
| 186    | Kaķsūrakkaṃśa Taila¹⁵,¹⁷ | Ti          | Kaċhu      | Karavīra | Mūla |
| 187    | Mālāyādi Taila⁹,¹⁰,¹²,¹⁵,¹⁷ | Ti          | Dārunaka   | Karavīra | Mūla |
| 188    | Viṣa Taila⁹,¹¹,¹⁴,¹⁵ | Ti          | Viṃphota   | Karavīra | Mūlatvaka |
| 189    | Apāmārādi Kvāṭha¹¹ | Kv          | Dantaroga  | Karavīra | Patra |
| 190    | Patolādi Kvāṭha⁴ | Kv          | Tālupāka   | Karavīra | –   |
| 191    | Elādi Lepa¹⁷ | Lp          | Napuṃṅaktā | Karavīranjāsītam | Mūla (Śveta) |
| 192    | Sahacarādi Taila¹⁶ | Ti          | Karṇp, Ākṣepa | Kopana (Rakta) |
| 193    | Sparśātāi Taila²⁹ | Ti          | Sparśvāta  | Hayāri   | Mūla |
| 194    | Nimbādi Lepa¹²,¹⁴,¹⁷ | Lp          | Snayuka roga | Śvetakaravīra | Mūlatvaka |
| 195    | Nimbādi Dhūpa⁶ | Dh          | Sarvaroga  | Āsvāghna | Patra |
| 196    | Bali Vidhi (Daivyā Vyāpāśryā)¹⁸-²⁰ | –           | Tritiyāka/Catur-thaka Ṣvāra | Karavīra | Puṣpa (Rakta) |

(syphilis) (10), Vājikarāṇa (aphrodisiac) (10), Arṣa (piles) (9), Bhagandara (fistula-in-ano) (9), Viṣa (poison) (9), Neterośa (eye disease) (7), Vātyāyādhi (neuromuscular anomalies) (6), Vātarakta (gout) (5), Sīrogra (disease of head) (5), Pālitya (graying of hair) (5), Dadru (taeniasis) (4), Pāmā (eczema) (4), Grahani (sprue) (3), Sūla (colic pain) (2), Rājyakṣamā (tuberculosis) (2), Carmedala (exfoliative dermatosis) (2), Udararoșa (disease of abdomen) (2), Plihāroșa (splenic disorder) (2), Sotha (inflammation) (1), and many disease conditions mentioned above. Although karavīra has been indicated for both external as well as internal uses, external uses are found maximum in comparison to internal administration.

There are various dosage forms of karavīra, among which the maximum include Taila (89) and Lepa (62) dosage forms found exclusively for external uses. Details of dosage forms are presented in Table 14.

On keen observation, it was found that almost all parts of karavīra are used as an ingredients in formulations to combat various disease conditions. Mūla (root) is the maximum part being used, 75 in external formulations and 55 in internal formulations. Table 15 provides the details on karavīra part used in classical treatise and compendiums.

After keen observation of karavīra, it is observed that external uses are more than that of internal uses, which may be due to it
A Review of Karavīra in Classical Texts of Āyurveda

Nerium oleander L. and Thevetia peruviana (Pers.) K. Schum. are commonly known as Oleander. All parts of the Oleandar plant are poisonous to humans, animals, and certain insects. \(^81\) Nerium oleander L. leaves contain two principles: neriin and oleandrin. \(^82\) The plant has digoxin properties such as steroidal glycosides. The bark contains scopoletin and scopoli. \(^83,84\) The alcoholic extracts of the root bark showed the presence of \(\alpha\)-amyrin, \(\beta\)-sitosterol, the ether fraction showed kaempferol, and the chloroform fraction showed odorcide, betulinic acid, and oleanolic acid. \(^85\) The preliminary phytochemical screening of

| S. no. | Formulations | Dosage forms | Indication | Synonyms | Part used |
|-------|--------------|--------------|------------|----------|-----------|
| 1     | Bṛhatyādi Kaśāya\(^1\) | Kv           | Kuṣṭha     | Karavīra  | Mūlatvaka |
| 2     | Candanādi Taila\(^2\) | Tl           | Kuṣṭha     | Karavīra  |
| 3     | Karavīra\(^3,4\) | Lp, Cr, Kv, Tl, Gh | Kuṣṭha | Aśvamāra | Mūla |
| 4     | Maricādi Taila\(^9–13,15\) | Tl           | Kuṣṭha     | Aśvāri    | Mūlatvaka |
| 5     | Karavīrādi Agada\(^4,5\) | Ag           | Vyantar Sarpadamā | Karavīra  | Puṣpa, Mūla |
| 6     | Kṣārāgada\(^4\) | Ag           | Viṣa       | Ahimāra   |
| 7     | Candanādi Taila\(^3\) | Tl           | Duṣṭa Vraṇa | Karavīra  |
| 8     | Maricādi Taila\(^9–13,15\) | Tl           | Pāmā      | Aśvāri    | Mūlatvaka |
| 9     | Maricādi Taila\(^9–13,15\) | Tl           | Vicarcika  | Aśvāri    | Mūlatvaka |
| 10    | Nirgundyādi Taila\(^3\) | Tl           | Apaci      | Karavīra  | Mūla |

On review, it was found that Mūla (root) of karavīra are found maximum (71) in formulations followed by Mūlatvaka (46), Patra (leaf) (31), Puṣpa (flower) (16) and Bīja (seed).

Nerium oleander L. and Thevetia peruviana (Pers.) K. Schum. are commonly known as Oleander. All parts of the Oleandar plant are poisonous to humans, animals, and certain insects. \(^81\) Nerium oleander L. leaves contain two principles: neriin and oleandrin. \(^82\) The plant has digoxin properties such as steroidal glycosides. The bark contains scopoletin and scopoli. \(^83,84\) The alcoholic extracts of the root bark showed the presence of \(\alpha\)-amyrin, \(\beta\)-sitosterol, the ether fraction showed kaempferol, and the chloroform fraction showed odorcide, betulinic acid, and oleanolic acid. \(^85\) The preliminary phytochemical screening of
methanolic extracts of *N. oleander* L. (leaves and roots) revealed the presence of phytoconstituents such as alkaloids, glycosides, flavonoids, carbohydrates, tannins, and phenolic compounds and the estimation of primary metabolites.⁶⁶ This species also produces secondary metabolites,⁶⁷ some of which are of pharmacological interest. Leaves and stem contain Dombonitol, root–bark contain 2,4-dihydroxy acetophenone and 4-hydroxy 2-acetophenone, which cause loss of muscular control, breathing troubles, and paralysis (Table 17).⁸⁸

Bacteria are the source of a wide range of diseases such as cholera, tetanus, diphtheria, tuberculosis, typhoid fever, etc. It is reported that methanolic extracts of *N. oleander* L. root bark and leaves are having antibacterial activity against *Bacillus pumilus*, *Staphylococcus aureus*, and *Escherichia coli*.⁹¹ Various reported pharmacological activities of *N. oleander* L. are presented in Table 18.

A wide spectrum of biological activities has been reported with various constituents isolated from different parts of the plant. Root, bark, and seeds contain cardiac glycosides that have a paralyzing action on the spinal cord. The leaves and the flower are cardiotonic, diaphoretic, diuretic, emetic, expectorant, and sternulatory properties.¹¹¹

*Thevetia peruviana* (Pers.) K. Schum. seed oil was used to make a plant with antifungal, antibacterial, and antitermite properties; it is a plant toxin insecticide for termites. *Thevetia peruviana* (Pers.) K. Schum. inhibited spermatogenesis in rats, indicating the possibility of developing herbal male contraceptive.¹²⁶ Various reported pharmacological activities of *T. peruviana* are presented in Table 20.

## Conclusion

Classical texts of Ayurveda noted different varieties, two to five, of karavīra based on the color of the flowers. Seventy five synonyms have been attributed to karavīra based on their habit, morphological characters, pharmacological properties, and actions, etc. Ayurvedic lexicon and compendiums classified karavīra in to 41 varga/group depending upon various criteria such as the first drug, the rasa present in the drug, the habit of drug, etc. Most of treatise mentioned karavīra having Kuṭha-Tikta rasa, Kuṭha vipāka, Tikṣṇa-laghu guṇa, and Uṣṇa virya properties. Karavīra finds a wide range of therapeutic importance being included as an ingredient in 472 formulations. After omitting the repeated ones, 222 formulations were scrutinized, among them 154 formulations have external uses, and 61 formulations have internal uses in almost 62 disease conditions. Maximum formulations are indicated in the treatment of Kuṣṭha (58), Śvitr (15), Vraṇa (13), Upadarśa, (10) and Vājīkaraṇa (10). It is used in various dosage forms; among them, Taila was found to be the maximum (65). External application of karavīra are found more as compare to the internal application which may be due to its poisonous character.

Reported studies reveal that all parts of the plant *N. oleander* L. and *Thevetia peruviana* (Pers.) K. Schum. having toxic properties possess phytoconstituents such as cardiac glycosides, flavonoids, carbohydrates, tannins, and phenolic compounds. Wide spectrum of pharmacological activities has been reported with various constituents isolated from different parts of the plant. Both the plant species reported for their antimicrobial and anti-fungal activities, hepatoprotective, anti diabetic, antimarial, antioxidant, central nervous system activity, antiangiogenesis activity, diuretic effect, radiotherapy supplement, and chemotherapy supplementation. Anticancer activity are reported in case of *N. oleander* L., while piscicidal activity, anti-inflammatory activity, anti diarrheal activity,
### Table 18: Reported pharmacological activities of *Nerium oleander* L.

| S. no. | Pharmacological activity | Extract/part/dose | Model | Standard drug | Comment |
|--------|--------------------------|-------------------|-------|---------------|---------|
| 1      | Hepatoprotective activity
         | Methanolic flower extract | CCl₄ induced | Silymarin (100 mg/kg po) | Results indicate the hepatoprotective properties of *N. indicum* against CCl₄ induced hepatotoxicity in rats. |
| 2      | Antidiabetic activity
         | Chloroform and ethanolic extract of leaf | Alloxan induced | Glibenclamide | The antihyperglycemic action of the extract may be due to improving the glycemic control mechanisms. |
| 3      | Neuroprotective activity
         | Flower | Serum deprivation and β-amyloid peptide toxicity | – | *Nerium indicum* provides a lead for future development of neuroprotective agent against neuronal death in neurodegenerative diseases. |
| 4      | Antioxidant activity
         | Methanolic extract of leaves and flower | DPPH-free radicals, Total Phenolic content | Ascorbic acid | The results clearly indicate that the methanol extract of *N. indicum* flowers have more potent antioxidants than that in leaves. |
| 5      | Analgesic activity
         | Methanolic extract of leaf and flowers | Acetic acid-induced writhing model | Aspirin | The analgesic activity of stem extract was less significant than that of crude flower and leaf extracts. |
| 6      | Central nervous system activity
         | Acid hydrolysis | Maximal electroshock and pentylentetrazol induced convulsion | Diazepam | The ethanol extract of *Nerium indicum* flowers has anticonvulsant activity in an experimental animal model. |
| 7      | Antimalarial activity
         | Ethanolic and aceton extracts | Anopheline larvae with LC₅₀ | – | The acetone extract showed culicine larvae. Thus ethanolic extract of different types of mosquito larvae. |
| 8      | Antiulcer activity
         | Methanol extract of leaves (500, 250 mg/kg) | Plus pylorus ligation-induced gastric ulcer model and indomethacin induced ulcer model | Cimetidine | This present study indicates that *Nerium indicum* leaf extracts have potential anti ulcer activity in the two models tested. |

### Contd…

| S. no. | Pharmacological activity | Extract/part/dose | Model | Standard drug | Comment |
|--------|--------------------------|-------------------|-------|---------------|---------|
| 9      | Molluscicidal activity
         | N-Butanol and water leaf extracts (20, 40, 60, 80, and 100 mg/L) | Esterase (EST) isozyme electrophoresis assay | Sodium pentachlorophenate or niclosamide (0.1 mg/L) | The extract shows strong molluscicidal activity. |
| 10     | Molluscicidal activity
         | Aqueous bark, boiled bark, Ethanolic bark, Purified bark extract (34.5 mg/L, 4.9 mg/L, 42.5 mg/L, 0.87 mg/L) | Lychnena acuminata snail | Niclosamide (11.8 ppm) | The *Nerium indicum* bark extracts may be used as a potent molluscicide. |
| 11     | Antiangiogenesis activity
         | Acid hydrolysis (100 µM) | Bioactivity testing | Matrigel (50 µL/well) | The result showed that OJ2 and OJ3 significantly inhibited the HMEC-1 cell tube formation. |
| 12     | Antiviral activity
         | Methanolic and methanolic-aqueous extracts | Influenza virus/MDCK cells and herpes simplex virus/Vero cells | – | *Holoptelea integrifolia* and *N. indicum* exhibited considerable antiviral activity against herpes simplex virus. None of these extracts showed cytotoxic effects. |
| 13     | Antifungal activity
         | 50% of the ethanol fraction of *N. indicum* leaves | Aspergillus niger and Candida albicans | – | Zone of inhibition of 10 mm and 13 mm were found in case of *A. niger* and *C. albicans*, respectively. |
| 14     | Diuretic effect
         | Potable extract of *Nerium indicum* | – | – | Concentrations of 1000, 500 and 50 µg/mL from each extract possess marked antileukemic effects. |
| 15     | Antileukemic effects
         | – | – | – | |

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Contd…

| S. no. | Pharmacological activity   | Extract/part/dose                                           | Model                                    | Standard drug | Comment                                                                 |
|--------|----------------------------|-------------------------------------------------------------|------------------------------------------|---------------|-------------------------------------------------------------------------|
| 16     | Immunomodulating activity  | Water extraction of crushed leaves of Nerium indicum       | –                                        | –             | Investigation of immunomodulating activity brought some indications for mitogenic activity and a weak macrophage-mediated cytotoxicity |
| 17     | Anticancer activity        | Different concentrations of Anvirzel™ (1.0 ng/mL to 500 µg/mL) or Olean- drin (0.01 ng/mL to 50 µg/mL) in both continuously treated and pulse-treated/recovery cultures | Human, canine and murine tumor cells | –             | Both Anvirzel and Oleandrin were able to induce cell killing in human cancer cells but not in murine cancer cells |
| 18     | Antiangiogenesis activity  | Three galactooligosaccharides (OJ1–OJ3) from the N. indicum leaves by acid hydrolysis method | Human microvascular endothelial cells (HMEC-1) | –             | After 16 hours incubation, control HMEC-1 cells formed distinct tube-like structures, but tube formation was disrupted for OJ2 and OJ3 at 100 µM concentration, whereas OJ1 displayed no antiangiogenesis activity |
| 19     | Radiotherapy supplementation | Anvirzel, an aqueous extract of N. indicum leaves | PC3 (human prostate cancer) cell line | –             | PC3 cells were found to be more prone to apoptosis when treated with oleandrin prior to radiation compared to individual treatment with oleandrin and radiation |
| 20     | Chemotherapy supplementation | Platinum derived cisplatin supplemented with Anvirzel™ | Breast, lungs, colon, prostate, melanoma and pancreatic cancer model | –             | Combination of 0.1 µg/mL cisplatin with 0.01 ng/mL Anvirzel displayed most potent toxicity for most of the cell lines |

Table 19: Reported phytoconstituents found in Thevetia peruviana (Pers.) K. Schum.

| Source/plants part            | Name of phytoconstituents               |
|-------------------------------|-----------------------------------------|
| Root                          | Peruvoside and neriifolin               |
| Stem                          | Metisol                                 |
| Leaf                          | Metisol                                 |
| Fruit pericarp and flowers    | Epiperuviol acetate, α and β-amyrin, kaempferol and quercetin |
| Seed/kernal                   | Theveside, viridoside, thevefolin, peruvoside, cerebrin, neriifolin, thevetin-B |

Table 20: Reported pharmacological activities of Thevetia peruviana (Pers.) K. Schum.

| S. no. | Pharmacological activity | Extract/part/dose | Model | Comment                                                                                                                                 |
|--------|--------------------------|-------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Antimicrobial activity   | Ethanol extract obtained from Thevetia neriifolia | Escherichia coli, Streptococcus lactis, Enterobacter aerogenes, Alcaligenes faecalis, pseudomonas aeruginosa, Proteus vulgaris, and fungal species of Fusarium oxysporum | Better antimicrobial activity was observed with the extracts showed maximum activity against E. coli. |
| 2      | Antifungal properties    | n-hexane or dichloromethane extract | Cladosporium cucumerinum for the evaluation of photoactive inhibitory effect | Antifungal light-dependent activity was observed for some of the fractions and both crude extracts |
| 3      | Piscicidal activity      | Leaf and bark of Thevetia neriifolia | Freshwater fish Catla (Hamilton) to evaluate their piscicidal activity in laboratory and cemented pond condition | The LC50 values of acetone leaf extract of Thevetia neriifolia plant is 88.80 mg/L (24 hours) in laboratory condition and 529.38 mg/L (24 hours) in cemented pond condition |

Contd…
antitermite, and antispermatogenic activity are reported in the case of *Thevetia peruviana* (Pers.) K. Schum.

Karavīra a drug of Upaviṣa (sub poisonous) category is a familiar plant and has great potential for clinical uses. The present review may help in exploring the drug for research activities.

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| S. no. | Pharmacological activity | Extract/part/dose | Model | Comment |
|-------|--------------------------|-------------------|-------|---------|
| 4     | Antispermatogenic activity\(^{130}\) | Methanolic extract of stem bark | Male albino rats | A significant fall in the total protein and sialic acid content of the testes, epididymides, seminal vesicle, and ventral prostate as well as in the glycogen content of testes was also observed. |
| 5     | Anti-inflammatory\(^{131}\) | Fresh flowers of *Thevetia neriifolia* | | The study revealed that isolated compound showed a biphasic property. |
| 6     | Antidiarrheal activity\(^{132}\) | Ethanol extracted leaves of yellow oleander | Castor oil included diarrhea in a model of albino rats | Showed significant antidiarrheal activity. |
| 7     | Antimicrobial activity\(^{132}\) | Ethanol extracted leaves of yellow oleander | Both gram+ and gram− bacteria | Ethanol extract leaves of yellow oleander showed narrow zone of inhibition in the bacteria lawns *Shigella flexneri*, *Salmonella typhimurium*, and *Staphylococcus aureus*. |
| 8     | Antitermite activity\(^{133}\) | Seed oil | Subterranean termites | *T. neriifolia*-based oil plant substantially protected wood from subterranean termite attack. |
| 9     | Free-radical scavenging assay\(^{134}\) | Petroleum ether, benzene, chloroform, acetone, and ethanol extracts of *Thevetia neriifolia* (Apocynaceae) leaves | DPPH radical assay | All extracts showed DPPH radical-scavenging activities, but among them petroleum ether extract shows maximum activity as compared to other extracts. |
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हिंदी सारांश

आयुर्वेद के शास्त्रीय ग्रन्थों में एक परिचित पादप के रूप में वर्णित करवीर की व्यापक समीक्षा

पृष्ठभूमि: करवीर, यद्यपि उपविष के रूप में जाना जाता है, कई रोगों के उपचार हेतु आयुर्वेदिक फार्माकोपीया का भाग बन चुका है। एक औषधि के रूप में, करवीर और इसके विशिष्ट भागों को बाह्य एवं अंतरिक्ष प्रयोग के माध्यम से विभिन्न रोग अवस्थाओं के विस्तृत विश्लेषण उपयोग के रूप में उपयोग किया जाता है। आयुर्वेद की उपयोगिता से ही विभिन्न समयवादियों में शास्त्रीय ग्रंथों को लिखा जाता रहा है। संकल्पित प्रारूप में इस ज्ञान की गंभीर समीक्षा और प्रकाशन नहीं किया गया है। इस शास्त्रीय औषधि की पहचान और उपयोग के संबंध में एक व्यवस्थित समीक्षा समय की मांग है।

उद्देश्य: करवीर जैसे वर्णकरण, पर्याय, श्रेष्ठगुण विज्ञानीय गुणों, कार्य, प्रजाति और विशिष्ट शास्त्रीय ग्रंथों से एक घटक के रूप में करवीर या इसके भागों से युक्त योगों की एक व्यापक समीक्षा करना और उन्हें व्यवस्थित तरीके से प्रस्तुत करना।

परिणाम: समीक्षा के पश्चात्, उनके पुष्प के रंग के आधार पर करवीर के प्रकाशी के बारे में अलग-अलग रात्रें मिलती है। इसके स्वरुपात्मक और श्रेष्ठदृष्टि विज्ञानीय गुणों के वर्ण बनाने के लिए विशिष्ट पर्याय जिस्मेदार हैं। आयुर्वेदिक शास्त्रीय ग्रंथों ने विशिष्ट मानदंडों के आधार पर करवीर को वर्ग में वर्गीकृत किया। बाह्य और अंतरिक्ष उपयोग वाले 222 योगों में करवीर का उपयोग एक सामग्री के रूप में किया गया। नैरायण ओलियंडर एि. और थिएटिया पेल्लिवियना (पृष्ठ.) के स्कम करवीर के सोते पादप हैं जिन्हें अपने चिकित्सकीय मूल्य और श्रेष्ठगुण विज्ञानीय श्रेष्ठगुण विज्ञानीय गतिविधियों के लिए सूचित किया। फाइटोकोम्प्लेक्ट्स की उपस्थिति के कारण इन पादपों के सभी भागों में विशिष्ट गुणग्रंथ हैं।

लिखित: विशिष्ट पर्याय, उनकी प्रजाति, वर्ग, उनके रसपंचक, कर्म और 62 रोगग्रस्त अवस्थाओं का सामना करने के लिए 222 योगों में चिकित्सकीय महत्व की एक विस्तृत श्रृंखला का उपयोग करते हुए आयुर्वेद के शास्त्रीय ग्रंथों में करवीर का वर्णन किया गया। कुष्ठ के उपचार में अधिकतम योगों का संकेत दिया गया है। अधिकतम डोजिंग तौर से रूप में हैं। करवीर का बाह्य प्रयोग अंतरिक्ष प्रयोग की तुलना में अधिक पाया जाता है जो इसके विशिष्ट स्वभाव के कारण हो सकता है।

मुख्य शब्द: बाह्य उपयोग, अंतरिक्ष उपयोग, करवीर, नैरायण ओलियंडर एि., विष, थिएटिया पेल्लिवियना (पृष्ठ.) के स्कम, उपविष