

A Translation of the Nepalese Text of the *Suśrutasamhitā*

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Contents

Sūtrasthāna	7
Sūtrasthāna 1: The Origin of Medical Knowledge	9
Literature	9
Translation	9
Sūtrasthāna 2: The Initiation of a Student	17
Literature	17
Translation	17
Sūtrasthāna 3: The Table of Contents	19
Literature	19
Translation	19
Sūtrasthāna 13: On Leeches	21
Literature	21
Translation	21
Sūtrasthāna 14: On Blood	29
Previous scholarship	29
Translation	29
Sūtrasthāna 16: Repairing Pierced Ears	37
Previous literature	37
Translation	37
Sūtrasthāna 28: Unfavourable Prognosis in Patients with Sores	47
Literature	47
Translation	47

Nidānasthāna	49
Nidānasthāna 1: The Diagnosis of Diseases Caused by Wind	51
Literature	51
Translation	51
 Śārīrasthāna	 59
Śārīrasthāna 2: On Semen and Menstrual Fluid	61
Literature	61
Conceptual background	61
Translation	61
JG translation	62
 Cikitsāsthāna	 65
Cikitsāsthāna 4: On the Treatment of Wind Diseases	67
Literature	67
Translation	67
 Cikitsāsthāna 5: On the Treatment of Serious Wind Diseases	 73
Literature	73
Translation	73
 Cikitsāsthāna 15: On Difficult Delivery	 85
Literature	85
Translation	85
 Kalpasthāna	 89
Kalpasthāna 1: Protecting the King from Poison	91
Introduction	91
Literature	92
Manuscript notes	92
Translation	93
[Threats to the king]	93

Kalpasthāna 2: Poisonous Plants	103
Introduction	103
Literature	104
Translation	104
The effects of poisons	108
Slow-acting poison	111
The invincible ghee	116
Curing the 'slow-acting' poison	116
Kalpasthāna 3: Poisonous Insects and Animals	117
Literature	117
Translation	117
The origin of poison	121
Patients beyond help	123
Kalpasthāna 4: Snakes and Invenomation	125
Introduction	125
Literature	125
Translation	127
[Types of snake]	130
[Symptoms of snakebite]	134
Kalpasthāna 4: Therapy for those bitten by Snakes	139
Introduction	139
Literature	139
Translation	139
Uttaratantra	141
Uttaratantra 17: Preventing Diseases of the Pupil	141
Literature	141
Translation	141
[Complications]	151
[Characteristics of the probe]	151
[Complications]	151

Uttaratantra 38: Diseases of the Female Reproductive System	155
Introduction	155
Literature	155
Placement of the Chapter	155
Parallels	157
Philological notes	158
Metrical alterations	158
The original opening verses	158
Translation	160
Uttaratantra 39: On Fevers and their Management [draft]	143
Literature	143
Remarks on the Nepalese version	143
Translation	143
Uttaratantra 65: Rules of Interpretation	157
Literature	157
Early Sources	157
Terminology	163
Characteristics of the Manuscript Transmission	163
Translation	163
Editions and Abbreviations	169
Index of Manuscripts	179
Bibliography	181
Materia Medica Reference Works	207
Materia Medica	213
Glossary	225

Sūtrasthāna

Nidānasthāna

Śārīrasthāna

Cikitsāsthāna

Kalpasthāna

Kalpasthāna 2: Poisonous Plants

Introduction

This section begins with several lists of poisonous plants. The Sanskrit names for these plants are mostly not standard or familiar from anywhere in Sanskrit or ethnobotanical literature. It remains a historical puzzle why these particular names are so difficult to interpret. However, we are not the first to encounter these difficulties. In the twelfth century, the learned commentator on the text, Ḍalhaṇa, remarked,

In spite of having made the greatest effort, it has been impossible to identify these plants. In the Himalayan regions, Kirātas and Śabarās are able to identify them.³¹⁹

Ḍalhaṇa also recorded variant readings of these poison names from the manuscripts that he consulted of the lost commentary of Gayadāsa (fl. c. CE 1000). The identities of these poisons have been in doubt for at least a thousand years.³²⁰ Identifications have in many cases been equally impossible for us today.

One path for exploration in this situation is to attempt to reverse-engineer some identifications by considering the known toxic plants of India.³²¹

³¹⁹ After *Suśrutasaṃhitā*, *kalpasthāna* 2.5 (Su 1938: 564). From the view of Sanskrit authors, Kirātas and Śabarās were tribal peoples. The eleventh-century author Bhikṣu Govinda, however, cast his treatise as a dialogue with a Kirāṭa king called Madana who was a master of the alchemical art (HIML: IIA, 620).

³²⁰ See Wujastyk 2003b: 80–81.

³²¹ Valuable reference sources on Indian plant toxicology in general include Pillay 2013: chs. 10, 11 and Barceloux 2008: parts 1.II, 3 and 4.

Literature

Meulenbeld offered an annotated overview of this chapter and a bibliography of earlier scholarship to 2002.³²²

Translation

- 1 And now I shall explain **what should be known** about stationary poisons.³²³
- 3 It is said that there are two kinds of poisons, stationary (*sthāvara*) and mobile (*jaṅgama*). The former dwells in ten sites, the latter in sixteen places.
- 4 Traditionally, the ten are: root, leaf, fruit, flower, bark, milky sap (*kṣīra*), pith (*sāra*), resin (*niryāsa*), the elements (*dhātu*), and the tuber.
- 5 In that context,
 - the eight root-poisons are:³²⁴
 1. liquorice (?),³²⁵
 2. sweet-scented oleander,³²⁶
 3. jequirity,³²⁷
 4. **false daisy**,³²⁸

³²² HIMAL: IA, 290–291.

³²³ No reference is made to Dhanvantari (see Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021). “Stationary” here is a term contrasted with “moving,” and signifies plants as opposed to animals and insects.

³²⁴ Some South Asian plants with poisonous roots that we would have expected to see in this list include *Croton tiglium*, L., *Calotropis* spp., *Citrullus colocynthus* L. Schrad., and *Ricinus communis* L. (CIPP).

³²⁵ Liquorice eaten in excess can be poisonous, but it is unlikely to be the plant intended here. T. B. Singh and Chuneekar (GVDB: 124) noted that the poisonous root mentioned in this passage, “remains to be identified.”

³²⁶ The roots of sweet-scented oleander are highly toxic, as are most parts of the plant (Pillay and Sasidharan 2019).

³²⁷ Jequirity contains a dangerous toxin called Abrin in its seeds and to a lesser extent in its leaves, but apparently not in its roots or bulb. Abrin is not harmful if eaten, but an infusion of the bruised (not boiled) seeds injected or rubbed in the eyes can be fatal (NK: # 6). The dose can be quite small.

³²⁸ The plant is usually called just *bhaṅgurā* without the prefix *su-* “good.” However, there is no reported toxicity associated with *E. prostrata*. The vulgate reads सुगन्धा (snakeroot).

5. (?),³²⁹ and ending with
 6. ??,³³⁰
 7. country sarsaparilla (?),³³¹ and
 8. medhshingi,³³²
- the leaf-poisons include:
 - aconite leaf (?),
 - drum-giver (?),
 - thorn apple, and
 - big thorn apple;
 - the fruits of items like: jequirity, marking-nut tree, and poison-altar (?) are
 - kumudavati (*kumadavati*)ⁱ,
 - reṇuka (?)ⁱⁱ,
 - kurūkaka (?)ⁱⁱⁱ,
 - 'little bamboo' (*veṇuka*)^{iv},³³³,

329 This poisonous root cannot at present be securely identified. Similar-sounding candidates include *karkaṭaka*, *karahāṭa* (emetic nut), and *karaghāṭa*, but since this is a prose passage, there would be no reason to alter the word to fit a metre. Monier-Williams et al. (MW: 255) cite an unknown lexical source that equates *karāṭa* (mn.) with safflower (*Carthamus tinctorius*, L.), but this plant does not have a poisonous root.

330 The roots of both rose and white leadwort are very toxic.

331 The text reads masculine *ananta*, which is not a plant name. Gayī's commentary on 5.2.5 (Su 1938: 564) noted a variant reading of feminine *anantā* in place of *gargaraka*, earlier in the compound. But the feminine *anantā*, country sarsaparilla, is not a poisonous plant.

332 Meulenbeld (1989: 61, n. 3) argued that our text reads a masculine or neuter noun *vijaya*, which never signifies cannabis. However, unlike the vulgate, the unanimous readings of the Nepalese manuscripts give feminine *vijayā*. Nevertheless, even the feminine form only started to signify *Cannabis sativa* L. after the end of the first millennium (mchu-2021a; Meulenbeld 1989; Wujastyk 2002). The *Sauśrutaniḥṣaṇṭu* gives a number of synonyms for *vijayā*, almost none of which have any poisonous parts (Suvedī and Tivārī 2000: 5.77, 10.143). But one of them, *viṣāṇī* (also *meṣaśṛṅgī*), is sometimes equated with *Dolichandrone falcata* (DC.) Seemann (ADPS: 518), a plant used as an abortifacient and fish poison (nadk-1982). This identification is tenuous.

333 Not poisonous.

i unknown; see ?

ii ?; see *Piper aurantiacum* Wall. (NK: #1924) is not poisonous.

iii ?; see ?

iv *Bambusa bambos*, Druce?; see NK #307

- thorn apple (*karambha*)^v,
- 'big thorn apple' (*mahākarambha*)^{vi},
- 'pleaser' (*nandanā*)^{vii},
- 'crow' (*kāka*)^{viii},
- the flower-poisons include those of:
 - rattan (*vetra*)^{ix},
 - wild chinchona (*kādamba*)^x,
 - black pepper (*vallīja* → *marica*)^{xi},
 - thorn apple (*karambha*)^{xii}, and
 - big thorn apple (*mahākarambha*)^{xiii};
- the seven bark, pith (*sāra*) and resin (*niryāsa*) poisons are:
 - 'gutboiler' (*antrapācaka*)^{xiv},
 - 'blade' (*kartarīya*)^{xv},
 - wild mustard (*saurīyaka*)^{xvi},
 - emetic nut (*karaghāṭa* → *karahāṭa?* → *madana*)^{xvii},
 - thorn apple (*karambha*)^{xviii},
 - wild asparagus (*nandana* → *bahuputrā?*)^{xix}, and

v *Datura metel*, L.; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

vi *Datura metel*, L.?; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

vii ?; see ?

viii ?; see ?

ix *Calamus rotang*, L.; see AVS 1.330, NK #413

x *Anthocephalus cadamba*, Miq.; see NK #204

xi *Piper nigrum*, L.?; see NK #1929; Rā.6.115, Dha.4.85, Dha.2.88

xii *Datura metel*, L.; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

xiii *Datura metel*, L.?; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

xiv unknown; see ?

xv unknown; see ?

xvi *Cleome viscosa*, L.? (cf. Rā.4.144); see AVS 2.116, NK #615

xvii *Randia dumetorum*, Lamk.; see NK #2091

xviii *Datura metel*, L.; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

xix *Asparagus racemosus*, Willd.; see ADPS 441, AVS 1.218, NK #264, IGP 103, IMP 4.2499ff., Dymock 482ff.

- munj grass (*nārācaka*)^{xx,334}
- the three milky sap (*kṣīra*)-poisons are:
 - purple calotropis (*kumudaghnī* → *arka*?)^{xxi,335}
 - oleander spurge (*snuhī*)^{xxii}, and
 - ‘web-milk’ (*jālakṣīri*)^{xxiii};
- the two element (*dhātu*)-poisons are:
 - ‘foam-stone’ (*phenāśma*)^{xxiv}, and
 - orpiment (*haritāla*)^{xxv,336}
- the thirteen tuber-poisons are:
 - jequirity (*kālakūṭa*)^{xxvi,337}
 - wolfsbane (*vatsanābha*)^{xxvii},

334 The bark of wild asparagus (*Asparagus racemosus*, Willd.) is toxic.

335 The name of this poison, *kumuda-ghnī*, means ‘lotus killer’. In Sanskrit literature, the *kumuda* lotus is associated with the moon, since it blossoms by night. Since the sun causes this lotus to close, it is therefore an ‘enemy’ of the lotus. One of the chief words for the sun, *arka*, is also the name of *Calotropis gigantea*, which indeed has a milky juice which is a violent purgative, poison and abortifacient.

336 Dutt (Dutt: 38–42) conjectured that ‘foam-stone’ may be impure white arsenic obtained by roasting orpiment.

337 The much later (perhaps sixteenth century) alchemical *Rasaratnasamuccaya* of pseudo-Vāgbhaṭa (21.14) says that the *kālakūṭa* poison, here translated as ‘jequirity’, is similar to ‘*kākacañcu*’ or ‘Crow’s Beak’, which is indeed a name for the plant jequirity or *Abrus precatorius*, L., more commonly called *guñjā* (not to be confused with *gañjā*). The black seed-pod is described as having a ‘sharp deflexed beak’ in botanical descriptions, so the Sanskrit name is quite graphic and appropriate. The poisonous scarlet seeds of *A. precatorius* can have a distinct black dot or tip, which could perhaps be translated ‘*kāla-kūṭa*’, or ‘Black Tip’.

The *Rājaniḥṣaṇṭupariśiṣṭa* (9.35) gives *kālakūṭaka* as a synonym for *kāraskara*, or *Strychnos nux-vomica*, L., whose seeds are notoriously poisonous.

xx *Saccharum bengalense*, Retz.?; see NK #2184

xxi *Calotropis gigantea*, (L.) R. Br.; see ADPS 52, AVS 1.341, NK #427, Potter 63

xxii *Euphorbia neriifolia*, L., or *E. antiquorum*, L.; see ADPS 448, AVS (2.388), 3.1, NK #988, IGP 457b

xxiii unknown; see ?

xxiv unknown; see ?

xxv *Arsenii trisulphidum*; see NK v. 2, p. 20 ff.

xxvi *Abrus precatorius*, L.? Cf. RRS 21.14.; see AVS 1.10, NK #6, Potter 168.

xxvii *Aconitum napellus*, L.; see AVS 1.47, NK #42, Potter 4 f.

- Indian mustard (*sarṣapa*)^{xxviii},
- leadwort (*pālaka* → *citraka*)^{xxix},
- ‘muddy’ (*kardama*)^{xxx}, the
- ‘Virāṭa’s plant’ (*vairātaka*)^{xxxi},
- nutgrass (*mustaka*)^{xxxii},
- atis root (*śrīgīviṣa*)^{xxxiii},
- sacred lotus (*prapuṇḍarīka*)^{xxxiv},
- radish (*mūlaka*)^{xxxv},
- ‘alas, alas’ (*hālāhala*)^{xxxvi},
- ‘big poison’ (*mahāviṣa*)^{xxxvii}, and
- galls (*karkaṭa*)^{xxxviii}.³³⁸

Thus, there are fifty-five stationary poisons.

- 6 There are believed to be four kinds of wolfsbane, two kinds of *mustaka*, and six kinds of Indian *sarṣapa*. But the rest are said to be unique types.

The effects of poisons

- 7–10 People should know that root-poisons cause writhing (*udveṣṭana*), ranting (*pralāpa*), and delirium (*moha*), and leaf-poisons cause yawning,

³³⁸ Leadwort root is a powerful poison. Nutgrass is tuberous, but non-toxic. Atis has highly toxic tuberous roots. Neither sacred lotus nor galls are toxic. The ‘alas, alas’ poison (*hālāhala*) is the mythical poison produced from the churning of the ocean at the time of creation: it occurs in medical texts such as the present one, and commentators identify it with one or other of the lethal poisons such as wolfsbane or jequirity. Agrawal (1963: 126) makes the intriguing suggestion that the word *hālāhala*, possibly to be identified with Pāṇini’s *hailihila* (P.6.2.38), may be of Semitic origin, although his evidence seems uncertain (Steingass (1930: 1506a) cites Persian *halāhil* ‘deadly (poison)’ as a loan from Sanskrit). KEWA: iii.585 also cites a claim for an Austro-Asiatic origin for the word.

xxvi *Brassica juncea*, Czern. & Coss.; see AVS 1.301, NK #378

xxix *Plumbago zeylanica* (indica? rosea?), L.; see Rā. 6.124, ADPS 119, NK #1966, 1967

xxx unknown; see ?

xxxi unknown; see ?

xxxii *Cyperus rotundus*, L.; see ADPS 316, AVS 2.296, NK #782

xxxiii *Aconitum heterophyllum*, Wall. ex Royle; see AVS 1.42, NK #39

xxxiv *Nelumbo nucifera*, Gaertn.; see Dutt 110, NK #1698

xxxv *Raphanus sativus*, L.; see NK #2098

xxxvi unknown; see Cf. *Soḍhalanighantu* p.43 (sub bola) = stomaka = vatsanābha

xxxvii unknown; see ?

xxxviii *Rhus succedanea*, L.; see NK #2136

writhing, and wheezing (*śvāsa*).

Fruit-poisons cause swelling of the scrotum, a burning feeling and writhing. Flower-poisons will cause vomiting, distension (*ādhmāna*) and sleep (*svāpa*).

The consumption of poisons from bark, pith (*sāra*) and resin (*niryāsa*) will cause foul breath, hoarseness (*pāruṣya*), a headache, and a discharge of phlegm (*kapha*).³³⁹

The milky sap (*kṣīra*)-poisons make one froth at the mouth, cause loose stool, and make the tongue feel heavy.³⁴⁰ The element (*dhātu*)-poisons give one a crushing pain in the chest, make one faint and cause a burning feeling on the palate.

These poisons are classified as ones which are generally speaking lethal after a period of time.

11–17 Symptoms of tuber poisoning

The tuber-poisons, though, are severe. I shall talk about them in detail. With jequirity (*kālakūṭa*)^{xxxix}, there is numbness and very severe trembling. With wolfsbane (*vatsanābha*)^{xl}, there is rigidity of the neck, and the faeces, and urine become yellow.

With sārṣapa (*sārṣapa*),³⁴¹ the wind becomes defective (*vātavaiguṇya*), there is constipation (*ānāha*), and lumps (*granthi*) start to appear. With leadwort (*pālaka* → *citraka*)^{xli}, there is weakness in the neck, and speech gets jumbled.³⁴²

339 At 1.2.6 (*Su* 1938: 11), Ḍalhaṇa glosses hoarseness (*pāruṣya*) as *vāgrūkṣatā*, “a rough, dry voice.”

340 At 6.54.10 (*Su* 1938: 773), Ḍalhaṇa glosses loose stool (*viḍbheda*) as *dravapurīṣatā*, “having liquid stool.”

341 *Sārṣapa* would normally mean “connected with mustard,” and excessive consumption of mustard oil can be harmful. However, the *Sauśrutaniḥṣaṇṭu* (156) gives *rakṣoghṇā* as a synonym for *sārṣapā*. This can be *Semecarpus anacardium*, L.f., which has some poisonous parts.

342 The verse in the Nepalese version ends with a plural verb that does not agree with the dual of the sentence subject.

xxxix *Abrus precatorius*, L.? Cf. RRS 21.14.; see AVS 1.10, NK #6, Potter 168.

xl *Aconitum napellus*, L.; see AVS 1.47, NK #38, Potter 4 f.

xli *Plumbago zeylanica* (indica? rosea?), L.; see Rā. 6.124, ADPS 119, NK #1966, 1967

With the one called ‘muddy’ (*kardama*)^{xlii}, there is a discharge (*praseka*), the faeces pour out, and the eyes turn yellow. The ‘Virāṭa’s plant’ (*vairāṭaka*)^{xliii} causes pain in the body and illness in the head. Paralysis of one’s arms and legs and trembling are said to be caused by mustaka (*mustaka*).³⁴³

-> ativiṣa

15b With great aconite (*mahāviṣa*) one’s limbs grow weak, there is a burning feeling and swelling of the belly.³⁴⁴

Look up
the ca. ref-
erence.

16a With puṇḍarīka (*puṇḍarīka*), one’s eyes go red, and one’s belly becomes distended.³⁴⁵

16b With mūlaka (*mūlaka*), one’s body is drained of colour and the limbs are paralysed.³⁴⁶

17a With hālāhala (*Aconite*), a man turns a dark colour (*dhyāma*), and gasps.³⁴⁷

17b With atis root (*śṛṅgīviṣa*)^{xliv}, one gets violent knots (*granthi*) and stabbing pains in the heart.³⁴⁸

18a With markāṭa (*monkey*), one leaps up, laughs, and bites.³⁴⁹

343 The substitution in MS NAK 5-333 affecting 15cd is caused by an eye-skip to the word *viṣeṇa* in 2.17. *Mustaka* commonly refers to *Cyperus rotundus*, L.; the root is used in āyurveda but is not poisonous. However other dictionaries list *mustaka* amongst serious poisons, for example *Rājanighaṇṭu* (22 v. 42) and *Rasaratnasamuccaya* 16, v. 80. However, its ancient identity is still doubtful.

344 The poisonous root great poison (*mahāviṣa*) is not clearly identifiable, although *viṣa* is commonly aconite. Verse 6 above notes that there are several kinds of aconite.

345 The word *puṇḍarīka* very commonly means sacred lotus, *Nelumbo nucifera*, Gaertn. The entire plant is edible and cannot be the poison intended here. T. B. Singh and Chunekar (GVDB: 252) noted that this poison is unidentified and that it is also listed as a poison in *Carakasamhitā*ci.23.12.

346 The word *mūlaka* very commonly means the radish, *Raphanus sativus*, L. The root is edible and cannot be the poison intended here. T. B. Singh and Chunekar (GVDB: 317) noted that this poison is unidentified.

347 Identification of *hālāhala* is uncertain. It may simply be a mythical poison, or its specific identity may have been lost over the centuries. Late *nighaṇṭus* identify it as *stomaka* = *vatsanābha*, i.e., *Aconitum napellus*, L. (*Soḍhalanighaṇṭu* p.43). Ḍalhaṇa on 5.2.17 (Su 1938: 564) interprets our “gasps” as “the man laughs and grinds his teeth.” But this gloss is probably displaced and intended to apply to verse 2.18.

348 T. B. Singh and Chunekar (GVDB: 407) noted that *vatsanābha* and *śṛṅgīviṣa* are two different varieties of poisonous Aconites that are difficult to distinguish.

349 T. B. Singh and Chunekar (GVDB: 299) said of *markāṭa*, “an unidentified vegetable

xlii unknown; see ?

xliii unknown; see ?

xliv *Aconitum heterophyllum*, Wall. ex Royle; see AVS 1.42, NK #39

- 18b-19a Experts have said that one should know that the thirteen highly potent tuber-poisons, which are mentioned here, have ten qualities (*guṇa*).
- 19b-20a The ten are:
- dry (*rūkṣa*),
 - hot,
 - sharp,
 - rarified (*sūkṣma*),
 - fast-acting,
 - pervasive (*vyavāyin*),
 - expansive (*vikāśin*),
 - limpid (*viśada*),
 - light, and
 - indigestible.
- 20b Because of dryness, it may cause inflammation of the wind; because of heat it inflames the choler and blood. Because of the sharpness it unhinges the mind, and it cuts through the connections with the sensitive points (*marman*). Because it is rarified it can infiltrate and distort the parts of the body.³⁵⁰
- 22 Because it is fast-acting it kills quickly, and because of its pervasiveness it affects one's whole physical constitution (*prakṛti*).³⁵¹ Because of its expansiveness it enters into the humour (*doṣa*)s, bodily constituents (*dhātu*)s, and even the impurities. Because it is limpid it overflows, and because it is light it is difficult to treat. Because it is indigestible it is hard to eliminate. Therefore, it causes suffering for a long time.
- 24 Any poison that is instantly lethal, whether it be stationary, mobile, or artificial, will be known to have all ten of these qualities.

Slow-acting poison

- 25cd-26 A poison that is old or destroyed by anti-toxic medicines, or else dried up by blazing fire, wind, or sunshine, or which has just lost its qualities

poison." Cf. Suvedī and Tivārī 2000: v.36 for synonyms that lead to the non-toxic jujube tree.

350 We read the active *vikaroti* with Ḍalhaṇa against the transmitted passive *vikriyeta*, since it must be the parts of the body that are distorted, not the poison.

351 Ḍalhaṇa on 5.2.22 (Su 1938: 565) explained this as "takes the form of pervading the whole body (*akhiladehavyāptirūpam*)."

- by itself,³⁵² becomes a slow-acting poison (*dūṣīviṣa*).³⁵³ Because it has lost its potency it is no longer perceived. Because it is surrounded by phlegm (*kapha*) it has an aftermath that lasts for a very long time.
- 27 If he is suffering from this, the colour of his stools changes, he gets sourness and a bad taste with great thirst. Stammering and close to death, wandering about, he may feel faint, giddy, and aroused.³⁵⁴
- 28 If it lodges in his stomach (*āmāśaya*), he becomes sick because of wind and phlegm; if it lodges in his intestines (*pakvāśaya*), he becomes sick because of wind and choler. A man's hair and limbs fall away and he looks like a bird whose wings have been chopped off.
- 29a–c If it lodges in one of the body tissues such as chyle (*rasa*), it causes the diseases arising from the body tissues, that have been said to be wrong.³⁵⁵ and it rapidly becomes inflamed on days that are nasty because of cold and wind.
- 29d–31 Listen to its initial symptoms (*liṅga*): it causes heaviness due to sleep, yawning, disjunction (*viśleṣa*) and horripilation (*harṣa*) and a bruising of the limbs (*aṅgamarda*).³⁵⁶ Next, it causes intoxication from food (*annamada*) and indigestion, loss of appetite (*arocaka*), the condition of having a skin disease (*koṭha*) with round blotches (*maṇḍala*),³⁵⁷ **dwindling away (*kṣaya*) of flesh**, swelling of the feet, hands, and face, **the fever called *pralepaka***, vomiting and diarrhoea.³⁵⁸ The slow-acting poison might cause **wheezing, thirst and fever, and it might also cause distension of the abdomen.**
- 32 These various disorders are of many different types: one poison may produce madness, while another one may cause constipation (*ānāha*), and yet another may ruin the semen. One may cause **emaciation**, while

352 Ḍalhaṇa specified that this refers to the ten qualities that are mentioned above (5.2.26 (Su 1938: 565)).

353 Ḍalhaṇa cited this verse at 1.46.83 (Su 1938: 222) while explaining *dūṣīviṣa*.

354 Similar symptoms of slow-acting poison are described at 2.7.11–13 (Su 1938: 296) in the context of contamination dropsy (*duṣyodara*). This this may explain why the vulgate inserted reference to this disease at this point.

355 The expression *ayathāyathoktān* “stated to be unsuitable” is hard to understand here, but is clearly transmitted in the Nepalese version.

356 Ḍalhaṇa 5.2.30ab (Su 1938: 565) glossed “disjunction” as the loss of function of the joints in regard to movement.

357 The last ailment could perhaps be ringworm.

358 The *pralepaka* fever was described by Ḍalhaṇa, at 6.39.52 (Su 1938: 675), as an accumulation of phlegm in the joints. Its symptoms are described in 6.39.54

another pallid skin disease (*kuṣṭha*).

- 33 Something is “corrupted” by repetitively keeping to bad locations, times, foods, and sleeping in the daytime. Or, traditionally, “corrupting poison” (slow-acting poison (*dūṣī-viṣa*)) is so called because it may corrupt (*dūṣayet*) the body tissue (*dhātu*)s.

34- The stages of toxic shock

In the first shock of having taken a stationary poison, a person’s tongue becomes dark brown and stiff, he grows faint, and panics.

- 35 In the second, he trembles, feels exhausted, has a burning feeling, as well as a sore throat. When the poison reaches the stomach (*āmāśaya*), it causes pain in the chest (*hṛd*).
- 36 In the third, his palate goes dry, he gets violent pain (*śūla*) in the stomach (*āmāśaya*), and his eyes become weak, swollen and yellow.
- 37 In the fourth shock, it causes the intestines and stomach to be exhausted (*sāda*), he gets hiccups, a cough, a rumbling in the gut (*antra*), and his head becomes heavy too.
- 38 In the fifth he dribbles phlegm (*kapha*), goes a bad colour, his ribs crack (*parśvabheda*), all his humours are irritated, and he also has a pain in his intestines (*pakvādhāna*).
- 39a In the sixth, he loses consciousness and he completely loses control of his bowels.
- 39b In the seventh, there are breaks in his shoulders, back and loins, and he stops breathing.³⁵⁹

Remedies for the stages of slow poisoning

- 40 In the first shock of the poison, the physician should make the man, who has vomited and been sprinkled with cold water, drink an antidote (*agada*) mixed with with honey and ghee.
- 41a In the second, he should make the man who has vomited and been purged drink as before;

³⁵⁹ Here at 5.2.24 (Su 1938: 566) Ḍalhana glossed *sannirodha* as “complete cessation, i.e., of breath” (*sannirodhaḥ samyaginirodhaḥ, ucchvāsasya iti śeṣaḥ*). The manuscripts all read *skanda* where *skandha* must be intended; this confusion is known from Buddhist Hybrid Sanskrit (Edgerton 1953: 608).

- 41b on the third, drink an antidote and a beneficial nasal medicine (*nasya*) as well as an eye salve (*añjana*).
- 42a In the fourth, the physician should make him drink an antidote that is salt with a little oil.³⁶⁰
- 42b In the fifth, he should be prescribed the antidote together with a decoction (*kvātha*) of honey and liquorice.
- 43 In the sixth, the cure (*siddhi*) is the same as for diarrhoea. And in the seventh, he perishes.³⁶¹
- 44 In between any one of these shocks, once the above treatment has been done, he should give the patient the following cold gruel (*yavāgū*) together with ghee and honey, that will take away the poison.
- 45–46 A gruel (*yavāgū*) made of the following items in a stewed juice (*niḥk-vātha*) destroys the two poisons: luffa gourd,³⁶² wild celery,³⁶³ velvet-leaf, sunflower,³⁶⁴ heart-leaved moonseed, myrobalan siris, and selu

360 At 6.52.30 (Su 1938: 769) Ḍalhaṇa noted that *sindhu* can be interpreted as salt (*saind-hava*).

361 The vulgate text here is quite different, recommending that the patient have medicated powder blown up his nose. It may be possible to detect the evolution of the Nepalese अवसीदेत् to the vulgate's अवपीडश्. The vulgate version is hard to construe, and we see Ḍalhaṇa struggling to interpret it in his commentary on 5.2.43ab (Su 1938: 566). This sternutatory is, however, recommended in the Nepalese version at 5.5.30ab (Su 1938: 576), for the seventh shock of poisoning by a striped snake (*rājimat*). It is possible the text migrated from that location to this.

Another difference at this point is that the Nepalese version also does not support the vulgate's passage on the crow's foot (*kākapada*) therapy (Wujastyk 2003b: 145, n. 106). The same is the case at 5.5.24 (Su 1938: 575) and the clear description at 5.5.45 (Su 1938: 577), in neither of which is the therapy supported in the Nepalese version. This therapy seems unknown to the Nepalese transmission. Perhaps the therapy migrated into the vulgate *Suśrutasaṃhitā* from the *Carakasamhitā* 6.23.66–67 (Ca 1941: 574).

362 At 4.10.8 (Su 1938: 449) Ḍalhaṇa glossed कोशवती as देवदाली and at 4.18.20 (Su 1938: 472) as कटुकोशातकी, vocabulary pointing to *Cucumis cylindrica*, *Cucumis act-angula* or *Luffa echinata*. See glossary under luffa.

363 A plant often cited in *Suśrutasaṃhitā*, but rarely in *Carakasamhitā* (GVDB: 4). Ḍalhaṇa glossed it here, 5.2.45 (Su 1938: 566), as *ajamodā*, wild celery, but noted that others consider it to be *moraṭa*, rajmahal hemp. There is considerable complexity surrounding the identification of *moraṭa*/*mūrvā* and related synonyms (GVDB: 314–316). Taking *agnika* as a short reference to *agnimantha*, often identified as migraine tree, might be plausible, since that is antitoxic or anti-inflammatory, but such a short reference is not known elsewhere.

364 At 5.2.45 (Su 1938: 566) Ḍalhaṇa said that this plant has leaves like the *paṭola*, pointed gourd, T. B. Singh and Chuneekar (GVDB: 280, 443) argued plausibly that this is a syn-

plum, white siris, **the two kinds of turmeric**,³⁶⁵ and the two kinds of poison berry,³⁶⁶ hogweed, peas, **the three heating spices**, the two kinds of Indian sarsaparilla³⁶⁷ **and blue water-lily**.

onym for *arkapuṣpī*, panacea twiner, as Ḍalhaṇa also stated in 1.45.120 (Su 1938: 206), and the leaves of *Holostemma* and *Trichosanthes* are indeed strikingly similar. The appearance of the plant, a creeper with sun-like flowers, fits the name. But there remains much controversy about the identities of these candidates (e.g., ADPS: 195–198).

365 I.e., turmeric and Indian barberry.

366 I.e., poison berry and yellow-berried nightshade.

367 I.e., country sarsaparilla and black creeper.

The invincible ghee

- 47–49 There is a famous ghee called “Invincible” (*ajeya*). It rapidly destroys all poisons but is itself unconquered. It is prepared with a mash (*kalka*) of the following plants: liquorice, crape jasmine, costus, deodar, peas, **Indian madder**, cardamom and cherry, cobra’s saffron, blue water-lily, sugar, embelia, sandalwood, cassia cinnamon, beautyberry, rosha grass, the two turmeric³⁶⁸ the two Indian nightshades,³⁶⁹ the two kinds of Indian sarsaparilla,³⁷⁰ beggarweed, and **heart-leaf sida**.

Curing the ‘slow-acting’ poison

- 50–52 Someone suffering from “slow-acting poison (*dūṣīviṣa*)” should be well sweated, and purged both top and bottom. Then he should be made to drink the following **eminent** antidote which removes “slow-acting poison:”
Take long pepper, rosha grass, spikenard, **lodh tree**, **cardamom**, natron, scented pavonia, red chalk, as well as gold, and pondweed.
This antitoxin, taken with honey, eliminates slow-acting poison. It is called the “enemy of slow-acting poison (*dūṣīviṣāri*),” and it is not prohibited in other situations.
- 53–54 If there are any other side-effects (*upadrava*), such as fever, a burning feeling, hiccups, constipation (*ānāha*), depletion of the semen, distension, diarrhoea, fainting, skin problems, bellyache (*jaṭhara*), madness, trembling, then one should treat each one in its own terms, using anti-toxic medicines.
- 55 For a prudent person, the slow-acting poison can be cured (*sādhya*) immediately. It is treatable (*yāpya*) if it is of a year’s standing. Other than this, it should be avoided for the person who eats unwholesome things.

³⁶⁸ I.e., turmeric and Indian barberry.

³⁶⁹ I.e., poison berry and yellow-berried nightshade.

³⁷⁰ I.e., country sarsaparilla and black creeper.

Kalpasthāna 4: Snakes and Invenomation

Introduction

The fourth chapter of the Kalpasthāna of the *Suśrutasamhitā* addresses the topic of snake bites and snake venom. Unusually for the Nepalese version of the *Suśrutasamhitā*, the discussion is framed as a question from Suśruta to the wise Dhanvantari. Suśruta's questions are about the number of snakes, how they are classified, the symptoms of their bites and the pulses or stages of toxic shock experienced by a victim of snakebite and related topics. The taxonomy of snakes is presented in tabular form in Figures 1 and 2.⁴⁰⁷

Literature

A brief survey of this chapter's contents and a detailed assessment of the existing research on it to 2002 was provided by Meulenbeld.⁴⁰⁸ There also exists an substantial herpetological literature from colonial India as well as more recent studies of snakes in the context of cultural and religious life.

The ophiological literature of the colonial period began in the late nineteenth century with the work of Fayrer, whose publication included striking colour paintings of snakes.⁴⁰⁹ Fayrer provided a biological taxonomy

407 On the idea of notational variants in scientific translation, see Elshakry 2008; Sarukkai 2016; Wujastyk 2021a: 81–83.

408 HIML: IA, 292–294. In addition to the translations mentioned by Meulenbeld (HIML: IB, 314–315), a translation of this chapter was included in P. V. Sharma 1999–2001: 3, 35–45.

409 Fayrer 1874, first published in 1872.

of snakes as well as chapters on mortality statistics during the nineteenth century, treatment and effects of poison, and experimental data. Ewart (1878) included descriptions of appearance and behaviour of poisonous snakes and sometimes their local names and reproducing Fayrer's illustrations.⁴¹⁰ Wall (1913: 75–124) provided a useful analysis of the medical effects of snake envenomation in India arranged by the varied symptomology of different snakes. He also discussed the difference between the symptoms of toxicity and fright (69–75) and also the difficulties arising out of uncertainty about the effects of snake-bite (124–126). The *Suśrutasamhitā* too recognized the emotional and somatic effects of fright (see note 422 below). Wall (1921) provided a wealth of detail of the snakes of Sri Lanka, including line drawings.

Doniger (2015) provided a good survey of snakes as protagonists in religious literature from the *Atharvaveda* through the epics, *Purāṇas* and Buddhist literature. Semeka-Pankratov (1979) traced semiotics of the term *nāga* through Vedic, Pali and Sanskrit literature. Slouber (2016: 31–33 *et passim*) discussed the *Suśrutasamhitā*'s *Kalpasthāna* as a precursor and influence on later Tantric traditions of snake-bite interpretation and therapy. In particular, the Tantric *Kriyākālaguṇottara* text that Slouber presented divided snakes into two basic categories, divine and mundane, as the *Suśrutasamhitā* does.⁴¹¹ But unlike the *Suśrutasamhitā*, in the *Kriyākālaguṇottara* the chief taxonomic principle for both groups is the four *varṇas*.

A discussion of this chapter specifically in the light of the Nepalese manuscripts was published by Harimoto.⁴¹² After a close comparative reading of lists of poisonous snakes, Harimoto concluded that, “the Nepalese version is internally consistent while the [vulgate] editions are not.” Harimoto showed how the vulgate editions had been adjusted textually to smooth over inconsistencies, and gave insights into these editorial processes.⁴¹³

410 Calling his work a supplement to Fayrer (1874), but also being cited by Fayrer, Ewart 1878 evidently also collected local indigenous knowledge from his “snake-man” (p. 22).

411 Slouber 2016: 144–145.

412 Harimoto 2011: 101–104.

413 The two editions that Harimoto noted, Su 1938 and Su 1889, present identical texts.

Translation

- 1 Now we shall explain the procedure (*kalpa*) about what should be known concerning the venom in those who have been bitten by snakes.⁴¹⁴
- 3 Suśruta, grasping his feet, questions the wise Dhanvantari, the expert in all the sciences.
- 4 “My Lord, please speak about the number of snakes, and their divisions, the symptoms of someone who has been bitten, and the knowledge about the successive shocks (*vega*) of poisoning”.⁴¹⁵
- 5 On hearing his query, that distinguished physician spoke.
“The venerable snakes such as Vāsukī and Takṣaka are uncountable.
- 6–gab “They are snake-lords who support the earth, as bright as the ritual fire, ceaselessly roaring, raining and scorching. They hold up the earth, with its oceans, mountains and continents. If they are angered, they can destroy the whole world with a breath and a look. Honour to them. They have no role here in medicine.
“The ones that I shall enumerate in due order are those mundane ones with poison in their fangs who bite humans.⁴¹⁶
- 9cd–10 “There are eighty kinds of snakes and they are divided in five ways: Darvīkaras, Maṇḍalins, Rājīmats, and Nirviṣas. And Vaikarañjas that are traditionally of three kinds.⁴¹⁷
- 11 “Of those, there are twenty and six hooded snakes, and the same number of Maṇḍalins are known. There are thirteen Rājīmats.⁴¹⁸

414 The *Sarvāṅgasundarī*, commenting on 1.16.17 (Ah 1939: 246), glossed कल्प as प्रयोग.

415 The expression “successive shocks” translates वेग, which in other contexts may mean “(natural) urge.” Here, it is rather the discrete stages or phases of physiological reaction to envenomation. Cf. the symptoms of cobra poisoning described by Wall (1913: 80).

416 The next few verses are discussed in detail by Harimoto (2011: 101–104), who shows that in the taxonomy of snakes, the Nepalese version of the *Suśrutasaṃhitā* has greater internal coherence than the vulgate recension.

417 Harimoto (2011) translated these names as “hooded,” “spotted,” “striped,” “harmless,” and “hybrid.” Figure 1 shows the taxonomy described in the vulgate text; Figure 2 shows the different and more logical division of the Nepalese version of the *Suśrutasaṃhitā*.

418 The phrasing of this śloka is awkward.

Or “There are 20 phanins and 6 maṇḍalins. The same number are known. There are 13 Rājīmats.” Or even, “there are 20 Phanins and six of them are Maṇḍalins.” Are phanins really the same as darvīkaras?

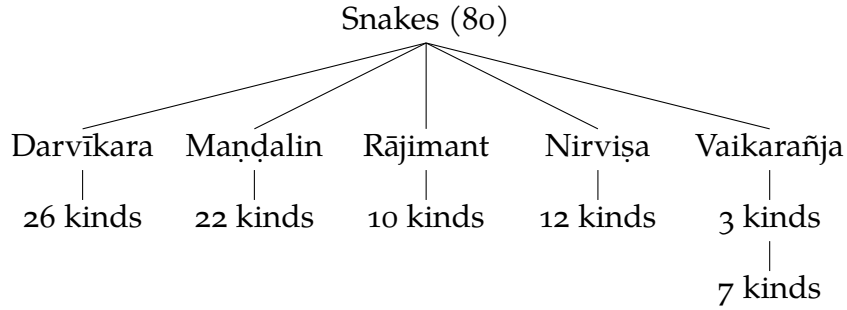


Figure 1: The taxonomy of snakes in the vulgate, 5.4.9–13ab (Su 1938: 571).

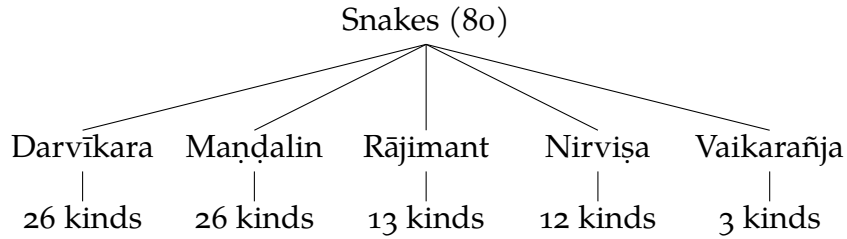


Figure 2: The taxonomy of snakes in the Nepalese version.

- 12 “There are said to be twelve Niriviṣas and, according to tradition, three Vaikarañjas.
- 13–14ef “If they are trodden on, ill-natured or provoked or even just looking for food, those very angry snakes will bite. And that is said to happen in three ways: serpented (*sarpita*), torn (*darita*) and thirdly without venom (*nirviṣa*). Some experts on this want to add “hurt by the snake’s body”.⁴¹⁹
- 15–16 “The physician can recognize the following as “ophidian (*sarpita*)”: Where a rearing snake makes one, two or more puncture-marks of its teeth, when they are deep and without much blood,⁴²⁰ accompanied

419 This might refer to constriction. The phrase reads like a commentarial addition rather than the main text of the *Suśrutasamhitā*.

420 The word उद्धृत “aroused” was glossed by Ḍalhaṇa at 5.4.15 (Su 1938: 571) as उन्मोद्य, a word not found as such in standard dictionaries (MW; KEWA; AyMahā; Apte). Semantic considerations suggest that the word is not related to $\sqrt{muṭ}$ “break” or *mūta*/*mūṭa* “woven basket.” Perhaps it is related to the Tamil மோதி (*mōṭi*), whose meanings include “arrogance, grandeur, display” (DED₂: #5133) or to faintly-documented forms like *moṭyate* “is twisted” (CDIAL: #10186). Ḍalhaṇa’s उन्मोद्य may thus mean “twisting up” or “making an arrogant display.”

- by a little ring of spots (*cuñcumālaka*),⁴²¹ lead to degeneration, and are close together and swollen.
- 17 Where there are streaks with blood, whether it be blue or white, the physican should recognize that to be “torn (*darita*),” having a small amount of venom.
- 18 The physician can recognize the locations of the bites of a person in a normal state as being free from poison, when the location is not swollen, and there is little corrupted blood.
- 19 The wind of a timid person who has been touched by a snake can get irritated by fear. It causes swelling.⁴²² That is “hurt by a snake’s body.”
- 20 Locations bitten by sick or frightened snakes are known to have little poison. Similarly, a site bitten by very young or old snakes has little poison.
- 21 Poison does not progress in a place frequented by eagles,⁴²³ gods, holy sages, **spirits**, and saints, or in places full of herbs that destroy poison.⁴²⁴

grammar

Note that पद “puncture-mark” (more literally, “footprint”) is being used in the same sense as in 1.13.19 (Su 1938: 57) when describing the marks on the body where a knife scarifies the skin before leeching. See footnote 49.

421 The usual dictionary lexeme is चञ्चु, not चुञ्चु as in the Nepalese witnesses. We translate “spots” following Ḍalhaṇa and Gayadāsa on 5.4.15 (Su 1938: 571), where they described a group of spots or swellings at the site of the bite. On the history of the word मालक, see Kieffer-Pülz 1996.

422 Wall (1913: 69) remarked on the difficulty of separating toxicity symptoms from the psychosomatic effects of terror:

The gravity of symptoms due to fright does not appear to me to be sufficiently recognised, though there is no doubt in my mind that fatal cases from this cause are abundant, especially among the timid natives of this country.

Wall went on to give several case studies in which patients experienced syncope or even died as a result of bites from toxicologically harmless creatures.

423 Ḍalhaṇa on 5.4.21 (Su 1938: 571) identified the सुपर्ण as a गरुड. On the bird called सुपर्ण, Dave (1985: 72 ff, 514) too noted that it may be a synonym for Garuḍa, and in some contexts may refer to the Golden Eagle, Golden Oriole, Lammergeyer, etc. Dave (1985: 199 ff, 492) noted again that the Garuḍa is a mythical bird but may refer to the Himalayan Golden Eagle and other species of eagle. He pointed out that historically, The original physical basis for गरुड as the नागाशी (snake-eater) was most probably the Sea-Eagle who picks up sea-snakes from the sea or sand-beach and devours them on a nearby tree... (Dave 1985: 201).

Dave continued with interesting reference to Śrīharṣa’s *Nāgānanda*.

424 For “spirits” the Nepalese version has भूत while the vulgate reads यक्ष.

[Types of snake]

- 22 Darvīkara snakes are known to have hoods, to move rapidly, and to have rings, ploughs, umbrellas, crosses, and hooks on them.
- 23 Maṇḍalin snakes are known for being large and slow-moving. They are decorated with many kinds of circles. They are like a flaming fire because of their poisons.
- 24 Rājimant snakes are smooth and traditionally said to be, as it were, mottled with multicoloured streaks across and above.

[Classes of snake]

- 25 Snakes that shine like pearls and silver, and that are amber and that shine like gold, and smell sweet are traditionally thought of as being of the Brāhmaṇa caste.
- 26 Warrior snakes, however, are those that look glossy and get very angry. They have the mark of the sun, the moon, the earth, an umbrella and bitumen.
- 27 Merchant snakes may traditionally be black, shine like diamond or have a red colour or be grey like pigeons.
- 28 Any snakes that are coloured like a buffalo and a tiger, with rough skin and different colours are known as servants.⁴²⁵
- 31 All snakes that are variegated (Rājīmats) move about during the first watch of the night. The rest, on the other hand, the Maṇḍalins and the Darvīkaras, are diurnal.⁴²⁶
- 29 Wind is irritated by all hooded snakes; bile by Maṇḍalins and phlegm by those with many stripes.
- 30 Because of the two classes having greater, lesser or equal class, there is the characteristic of irritating two humours.
And he will explain the opposing view that is to be known as a result of the non-union of a male and female.⁴²⁷

⁴²⁵ Presumably “different” from the earlier-mentioned castes.

The sequence of the following three verses is slightly different from the vulgate (5.4.29–31 (Su 1938: 572)).

⁴²⁶ The readings of the vulgate, that Rājīmats are active in the early night, the Maṇḍalins in the later night, and Darvīkaras in the day, seem clearer.

⁴²⁷ The sense of the last phrase here is quite different from the vulgate, which says only that “details” will be explained below.

[Enumeration of snakes]

34.1 In that context, here are the Darvīkaras.

- | | |
|--|---|
| 1. The Black snake (<i>kṛṣṇasarpa</i>); | (<i>mahāpadma</i>); |
| 2. The Big Black (<i>mahākṛṣṇa</i>); | 16. The Grass Flower (<i>apuṣpa</i>); |
| 3. The Black Belly (<i>kṛṣṇodara</i>); | 17. The Curd Mouth |
| 4. The All Black (<i>sarvakṛṣṇa</i>); ⁴²⁸ | (<i>dadhimukha</i>); |
| 5. The White Pigeon | 18. The Lotus Mouth |
| (<i>śvetakapota</i>); ⁴²⁹ | (<i>puṇḍarikamukha</i>); |
| 6. The Rain Cloud (<i>valāhako</i>); | 19. The Brown Hut Mouth |
| 7. The Great Snake | (<i>babhrūkuṭīmukha</i>); |
| (<i>mahāsarpa</i>); | 20. The Variegated (<i>vicitra</i>); |
| 8. The Conch Keeper | 21. The Flower Sprinkle Beauty |
| (<i>śaṃkhaṭāla</i>); | (<i>puṣpābhikīrṇābha</i>); |
| 9. The Red Eye (<i>lohitākṣa</i>); | 22. The Mountain Snake |
| 10. The Gavedhuka (<i>gavedhuka</i>); | (<i>girisarpa</i>); |
| 11. The Snake Around | 23. The Straight Snake |
| (<i>parisarpa</i>); | (<i>rjusarpa</i>); |
| 12. The Break Hood | 24. The White Rip (<i>śvetadara</i>); |
| (<i>khaṇḍaphaṇa</i>); | 25. The Big Head (<i>mahāśīrṣa</i>); |
| 13. The Kūkuṭa (<i>kūkuṭa</i>); | and |
| 14. The Lotus (<i>padma</i>); | 26. The Hungry Sting (<i>alagarda</i>); |
| 15. The Great Lotus | |

34.2 Here are the Maṇḍalins

- | | |
|--|--|
| 1. The Mirror Ring | 9. The Big Jackfruit |
| (<i>ādarśamaṇḍala</i>); | (<i>mahāpanasaka</i>); |
| 2. The White Ring | 10. The Bamboo Leaf |
| (<i>śvetamaṇḍala</i>); | (<i>veṇupatraka</i>); |
| 3. The Red Ring (<i>raktamaṇḍala</i>); | 11. The Kid (<i>śīsuka</i>); |
| 4. The Speckled (<i>prṣata</i>); | 12. The Intoxicator (<i>madanaka</i>); |
| 5. The Gift of God (<i>devadinna</i>); | 13. The Morning Glory |
| 6. The Pilindaka (<i>pilindaka</i>); | (<i>pālindaka</i>); |
| 7. The Big Cow Snout | 14. The Stretch (<i>tantuka</i>); |
| (<i>vṛddhagonasa</i>); | 15. The Pale as a Flower |
| 8. The Jackfruit (<i>panasaka</i>); | (<i>puṣpapāṇḍu</i>); |

⁴²⁸ Not in vulgate.

⁴²⁹ The vulgate adds The Big Pigeon (*mahākapota*).

- | | |
|--------------------------------------|--|
| 16. The Six Part (<i>ṣaḍaṅga</i>); | 22. The Hand Decoration |
| 17. The Flame (<i>agnika</i>); | (<i>hastābharaṇaka</i>); |
| 18. The Brown (<i>babhru</i>); | 23. The Tatra (<i>tatra</i>); ⁴³⁰ |
| 19. The Ochre (<i>kaṣāya</i>); | 24. The Mark (<i>citraka</i>); |
| 20. The Khaluṣa (<i>khaluṣa</i>); | 25. The Deer Foot (<i>eṇīpada</i>). ⁴³¹ |
| 21. The Pigeon (<i>pārāvata</i>); | |

34.3 Here are the Rājīmats.⁴³²

- | | |
|---|--|
| 1. The Lotus (<i>puṇḍarīka</i>); | 7. The Grass Drier (<i>trṇaśoṣaka</i>); |
| 2. The Stripe Speckle (<i>rājicitra</i>); | 8. The White Jaw (<i>svetahanu</i>); |
| 3. The Finger Stripe (<i>aṅgulirāji</i>); | 9. The Grass Flower |
| 4. The Two Finger Stripe | (<i>darbhapuṣpa</i>); ⁴³³ |
| (<i>dvyāṅgulirāji</i>); | 10. The Red Eye (<i>lohitākṣa</i>); ⁴³⁴ |
| 5. The Drop Stripe (<i>bindurāji</i>); | 11. The Ringed (<i>cakraka</i>); |
| 6. The Mud (<i>kardama</i>); | 12. The Worm Eater (<i>kikkisāda</i>); |

34.4 Here are the Nirviṣas.

- | | |
|---|--|
| 1. The Rain Cloud (<i>valāhako</i>); ⁴³⁵ | 8. The Two-day (<i>dvyāhika</i>); |
| 2. Thei Snake Flag (<i>ahipatāka</i>); | 9. The Milk Flower |
| 3. The White Leaf (<i>śukapatra</i>); | (<i>kṣīrikāpuṣpa</i>); |
| 4. The Goat Swallow | 10. The Flower All (<i>puṣpasakalī</i>); |
| (<i>ajagara</i>); | 11. The Chariot of Light |
| 5. The Stimulator (<i>dīpyaka</i>); | (<i>jyotīratha</i>); |
| 6. The Ilikinī (<i>ilikinī</i>); | 12. The Little Tree (<i>vrkṣaka</i>); |
| 7. The Year-Snake (<i>varṣāhika</i>); | |

34.5 The Vaikaraṇjas originate out of contrary unions amongst the three colours.⁴³⁶ Thus:

1. The Mākuli (*mākuli*);

varṇa
means "col-
our" else-
where?

430 This seems implausible, but otherwise the list of Maṇḍalins would be short.

431 The list is short by one item. Perhaps the one of the snakes named in the vulgate, *citramaṇḍala*, *gonasa* or *piṅgala*, should be considered here.

432 The following list is one item short. The vulgate text, however, has several names that do not appear in the Nepalese Rājīmat list, for example *Sarṣapaka* and *Godhūmaka*.

433 Also in the Darvīkara list.

434 Also in the Darvīkara list.

435 Also in the Darvīkara list.

436 The word *varṇa* in this chapter normally means "colour" not "class." ("Class is expressed by "jāti.") While *kṛṣṇasarpa* is clearly a colour-type, it is less obvious that *gonasī* is a special colour, and *rājīmat* is a group of snakes.

2. The Poṭa Throat (*poṭagala*);
3. The Oil Stripe (*snigdharāji*);

Amongst those, the Mākuli (*mākuli*); is born when a male Black Snake mates with a female Cow Snout (*gonasa*), or the reverse. The Poṭa Throat (*poṭagala*) is born when a male Rājila mates with a female Cow Snout (*gonasa*) or the reverse. The Oily Stripe (*snigdharāji*) is born when a male Black Snake mates with a female Rājimat, or the reverse. Their poison is like that of their father, because it is the superior one out of the two; but others say it is like the mother. Thus eighty of these snakes have been described.

35 Amongst them, males have large eyes, tongues and heads.⁴³⁷ Females have small eyes, tongues and heads. Neuters have both characteristics, and are slow to exert themselves or be angry.⁴³⁸

36 In that context we shall give instruction in a general way about the sign of having been bitten by any of the snakes.

For what reason?

Because poison acts quickly, like a fire with an oblation, a honed sword, or a thunderbolt.⁴³⁹ And ignored for even a period of time, it can drag the patient away. There is not even an opportunity to follow the literature.⁴⁴⁰

And when the symptom of being bitten is stated, there will be three ways of treating it because there are three kinds of snake. Therefore we shall explain it in three ways. “For this is good for people who are ill, and it removes confusion and in this very case it prevents all symptoms”.⁴⁴¹

437 The vulgate includes the snake’s mouth in this and the next list.

438 The reading मन्दचेष्टाक्रोधा is an awkward compound; possibly the original reading was मन्दचेष्टा: + अक्रोधा and sandhi was applied twice.

439 Perhaps the image suggested by “a fire with an oblation” is that of the Pravargya, in which a large flame rises suddenly from the ritual fire.

440 The idea seems to be that there is no time to consult the verbose āyurvedic teachings. The “extensive meaning of the collection of statements (वाक्समूहार्थविस्तार)” is singled out as one of Āyurveda’s virtues in 5.8.142 (Su 1938: 594). Alternatively, perhaps the patient is unable to understand what the doctor is saying to him.

441 In the next passage, the symptoms of snake poisoning are indeed explained under three headings.

[Symptoms of snakebite]

- 37 In this context, the poison of a Darvīkara causes the skin, nails, eyes, mouth, urine, feces, and the bite mark to be black; there is driness, the joints hurt and the head feels heavy; the waist, back and neck feel weak; there is yawning, the voice becomes faint, there is gurgling, paralysis, dry throat, cough, wheezing, and hiccups; the wind goes upwards, the patient convulses with sharp pain, black saliva dribbles out, foam appears, the ducts (*srotas*) are blocked and every kind of pain that is due to wind.⁴⁴²

The poison of a Maṇḍalin causes the skin, nails, eyes, teeth, mouth, urine, feces, bite mark to be yellow; there is a desire for cold, a temperature, giving off fumes,⁴⁴³ a burning feeling, thirst, intoxication, fainting, fever, haemorrhaging (*śonitāgamana*), and the degeneration of the flesh and fat above and below. There is swelling, suppuration of the bite, metamorphopsia (*viparītadarśana*), anger caused by the suffering, and every kind of pain that is due to bile.⁴⁴⁴

The poison of a Rājīmat causes the skin, nails, eyes, teeth, mouth, urine, feces, and bite mark to be pale; there is a cold fever, the hair stands on end, there is stiffness and swelling of the limbs including the site of the bite. There is a discharge of viscous phlegm, vomiting, itchy eyes, and a rattling sound. The breath is obstructed and there is every kind of pain due to phlegm.

- 38 In that context, “someone bitten by a male gazes upwards, by a female horizontally, and by a neuter, downwards.” One bitten by a pregnant snake has a pale face and becomes swollen (*ādhmāta*). One bitten by a recently-delivered snake is afflicted with abdominal pain and urinates

442 Cf. the similar symptoms of snake venom poisoning by the so-called Brahmin warriors of Harmatelia described by the classical author Diodorus Siculus (fl. ca. 30-60 BCE) (Eggermont 1975: 108).

443 The term “giving of fumes (परिधूपयन)” is not in MW: 596 as such, although परिधूपन, परिधूमन and परिधूमायन are cited and referred to the *Suśrutasaṃhitā*. “Giving off fumes (परिधूपन)” is listed at *Suśrutasaṃhitā* 2.6.13 (Su 1938: 291) amongst the symptoms of urinary disease caused by phlegm. The editors note a variant reading परिधूमायन but do not tell us in which manuscript (Su 1938: 291, n. 3). Ḍalhaṇa on 2.6.13 (Su 1938: 292) glossed परिधूपन as “hot all over (समन्ततस्तापः)” and in our current passage as “hot over the whole body (सर्वाङ्गसन्तापः)” (Su 1938: 573). See also AyMahā: 1, 429: धूमायन “अङ्गानां धूमोद्गमनमिव” citing the *Suśrutasaṃhitā*.

444 Ghosh et al. (2023) describes visual disturbances due to snake envenomation.

with blood. One bitten by a hungry snake craves food. Those bitten by an old snake have delayed and slow reactions. And one bitten by a young snake is fast and keen. One bitten by a non-venomous snake has the characteristic mark of non-poisoning.⁴⁴⁵ Some that are bitten by a blind snake become blind. A constrictor (*ajagara*) is deadly because it swallows, not because of poison.

[Toxic Pulses]

39 In that context, all snake toxins have seven toxic pulses (*viṣavega*).⁴⁴⁶

[**Darvīkaras**] Thus, at the first pulse of the Darvīkaras the poison corrupts the blood. That corrupted blood turns black. Because of that, blackness and a feeling of ants crawling about on the body develop.⁴⁴⁷ In the second pulse, it corrupts the flesh. That causes extreme blackness and lumps.

In the third, it corrupts the fat. That causes a discharge at the bite, heaviness of the head and an eclipse of the vision.⁴⁴⁸

In the fourth, it penetrates the trunk of the body (*koṣṭha*). From there, it irritates the humors, particularly phlegm. That causes exhaustion and oozing phlegm, and dislocation of the joints.

In the fifth pulse, it penetrates the bones. That causes breaking of the joints, hiccups and burning.

In the sixth pulse, it penetrates the marrow. That causes humours in the seat of fire in the gut (*grahaṇī*), heaviness of the limbs, diarrhoea, pain in the heart and fainting.⁴⁴⁹

In the seventh, it penetrates the semen and greatly irritates the vyāna breath (*vyāna*), and causes the phlegm (*kapha*) to run imperceptibly out of the tubes (*srotas*). That causes the appearance of mucous (*śleṣman*),

445 The grammar of अविषलिङ्गम् is not quite right; it should be a masculine or plural bahuvrīhi.

446 Cf. the same concept in the context of plants, at 113

447 Strictly, we would expect a dual verb here, instead of the plural of the witnesses.

448 Ḍalhana on 5.4.39 (Su 1938: 574) glossed the last expression as “blockage of the vision (दृष्ट्यवरोध).”

449 The “seat of fire in the gut (ग्रहणी)” is an ayurvedic organ in the digestive tract that does not correspond to any specific organ known to contemporary anatomy. For discussion, see AyMahā: v. 1, 304; Meulenbeld 1974b: 619; Das 2003: 544–545.

breaking of the hips, back and shoulders, impediment to all movements and shortness of breath.

[**Mandalins**] Thus, at the first pulse of the Mandalins, the poison corrupts the blood. Corrupted by that, it turns yellow. That causes a yellow appearance and a feeling of heat all over (*paridāha*).

In the second pulse, it corrupts the flesh. And that causes the limbs to be very yellow and an extreme feeling of heat all over (*paridāha*), and swelling at the bite.

In the third, it corrupts the fat. That causes a discharge at the black bite and sweating.

In the fourth, it penetrates as before and brings on fever.

In the fifth, it causes heat in all the limbs.

In the sixth and seventh, it is the same as before.

[**Rājīmats**] Thus, in the first pulse of the Rājīmats, the poison corrupts the blood. Corrupted by that, it turns yellow. It causes a person to have hair standing on end and a pale appearance.

In the second pulse, it corrupts the flesh. That causes him to become pale and to become extremely benumbed (*jāḍya*).

In the third, it corrupts the fat. That causes moistness of the bite and runny eyes and nose.

In the fourth, it is the same as before. After penetrating, it brings on manyāstambha (*stiffness of the neck*) and heaviness of the head.

In the fifth, speech is confused and there is a cold fever.

In the sixth and seventh, it is the same as before.

40 There are verses on this.

*It is well known that there are seven layers of skin (kalā) in between the bodily tissues (dhātu). Poison passing through these one by one causes the toxic pulse (vega).*⁴⁵⁰

41 *The interval taken by the deadly substance (kālakaḥ), propelled (√ūh) by air (samīraṇa), to cut the layers of skin is known as the "pulse interval (vegāntara)".*⁴⁵¹

kalā doctrine; see SS
sārira 4.4

450 The seven layers of skin are discussed at XXX

451 Ḍaḥaṇa on 5.4.41 (*Su* 1938: 574) glossed कालकल्प as मृत्युसदृशं विषं "the poison resembles death."

- 42 *In the first pulse, an animal has a swollen body, is distressed and broods.*⁴⁵²
- In the second, it dribbles somewhat,⁴⁵³ the hair stands up on its body, and it has pain (√pīḍ) in the heart.*
- 43 *The third stage brings headache and it breaks the **ears** and necks.*⁴⁵⁴
- In the fourth, the bewildered creature trembles and gnashing its teeth, it gives up life.*
- 44-45 *Some experts say that elephants have three toxic pulses.*⁴⁵⁵
- So, at the first pulse, an bird becomes bewildered and is confused from that point on. At the second, the bird is distressed and, crying out, it dies.*
- Some people claim that where birds are concerned, there is really just a single toxic pulse (vega) and that amongst animals like cats and mongooses, poison does not take much effect.*⁴⁵⁶

check
in epic
sanskrit

clear up AS
reading

452 The verb √प्रच्यै "meditate, be thoughtful, brood" is unexpected here and in the second class, an epic form. Ḍaḥaṇa on 5.4.42 (Su 1938: 574) noted a variant reading that omitted the vulgate's variant ध्यायति प्रथमे "at first it broods."

453 The Nepalese witnesses use ललि-, not लाला-, for "saliva."

454 The scribe of MS H emended the text to read कण्ठग्रीव with the vulgate. Intransitive use of pass. भञ्ज्.

455 On अन्तःस्वेद as "elephant," see Arthaśāstra 09146

456 See on this subject: T. L. Brunton and Fayrer 1909: 39-40; S. A. Minton and M. R. Minton 1969: 88-89 (references taken from HIML: 1B, 399, n. 124.

Kalpasthāna 4: Therapy for those bitten by Snakes

Introduction

Literature

A brief survey of this chapter's contents and a detailed assessment of the existing research on it to 2002 was provided by Meulenbeld.⁴⁵⁷

Translation

1

⁴⁵⁷ [HIML](#): IA, 294–295. In addition to the translations mentioned by Meulenbeld ([HIML](#): IB, 314–315), a translation of this chapter was included in P. V. Sharma [1999–2001](#): 3, 35–45.

Uttaratantra

Editions and Abbreviations

Ah 1939

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Anup Sanskrit Library.

Apte

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AS

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- DED₂ Burrow, Thomas, and Emeneau, Murray B. (1984), *A Dravidian Etymological Dictionary* (2nd edn., Oxford: Clarendon Press), [ark :/13960/t4wj06g26](#), [URL](#).
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- HIML Meulenbeld, Gerrit Jan (1999–2002), *A History of Indian Medical Literature*, 5 vols. (Groningen: E. Forsten), ISBN: 9069801248.
- IOLR Eggeling, Julius, et al. (1887–1935), *Catalogue of the Sanskrit Manuscripts in the Library of the India Office*

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- KEWA Mayrhofer, Manfred (1953–72), *Kurzgefaßtes etymologisches Wörterbuch des Altindoarischen; a Concise Etymological Sanskrit Dictionary* (Heidelberg: Carl Winter, Universitätsverlag).
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- समुल्लसितम् = *Mādhavanidāna* by Mādhavakara with the Two Commentaries, *Madhukosha* by Vijayarakshita & Shrikānthadatta and *Ātankadarpaṇa* by Vāchaspati Vaidya (3rd edn., Bombay: Nirnaya Sagara Press), [ark : / 13960 / t66452x0h](https://nir.nir.org/ark:/13960/t66452x0h); Reprinted Varanasi: Chowkhambha, 1986.
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- NAK *National Archives of Kathmandu.*
- NCC Raghavan, V., et al. (1949–), *New Catalogus Catalogorum, an Alphabetical Register of Sanskrit and Allied Works and Authors*, 39 vols. (Madras University Sanskrit Series; Madras: University of Madras); v.1: revised edition, 1968. Searchable at <https://vmlt.in/ncc/>.
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- PW Böhtlingk, Otto, and Roth, Rudolph (1855–75), *Sanskrit-Wörterbuch* (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), [URL](https://www.sanskrit-worterbuch.de/), accessed 18/05/2023.

- PWK Böhlingk, Otto (1879), *Sanskrit-wörterbuch in kürzerer fassung* (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), [URL](#), accessed 18/05/2023.
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- Su 1889 Bhattachāryya, Jivānanda Vidyāsāgara (1889) (ed.), *सुश्रुतः. सूत्र-निदान-शारीर-चिकित्सा-कल्पोत्तर-तन्त्र-कल्पित आयुर्वेद. भगवता धन्वन्तरिणोपदिष्टः सुश्रुतनामधेयेन तच्छिष्येण विरचितः* (3rd edn., Calcutta: Saratī Press), [ark : / 13960 / t1nh6j09c](#); [HIML](#): IB, 311, edition b.
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Index of Manuscripts

Numbers after the final colon refer to pages in this book.

NAK 5-333: [110](#)

Thanjavur TMSSML 10773: [170](#)

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Materia Medica

Numbers after the final colon refer to pages in this book.

aconite leaf (?) (*viṣapatrikā*) Unknown. Cf. perhaps, *vatsanābha* (wolfsbane). Cf.

GVDB: 373 : 105

‘alas, alas’ (*hālāhala*) unknown. See Cf. Soḍhalanighantu p.43 (sub bola) = stomaka = vatsanābha :

Alexandrian laurel (*punnāga*)

Calophyllum inophyllum, L. See

AVS: 1, 338, NK: 1, #425 :

amaranth (*taṇḍulīyaka*) Amaranthus hypochondriacus, L. See King 321, NK: 1, #144, Potter^{rev}: 15. Cf.

AVS: 1, 121 : 98

arjun (*arjuna*) Terminalia arjuna, Bedd. See HK: 34

ash gourd (*kūṣmāṇḍa*) → puṣpaphala. Beninkasa hispida, (Thunb.) Cogn. See AVS: 2, 1127; cf. AVS: 1, 261 :

atis root (*śṛṅgīviṣa*) Aconitum heterophyllum, Wall. ex Royle. See AVS: 1, 42, NK: 1, #39 :

axlewood (*dhava*) Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill & Perr. See AVS: 1, 163 f, Chopra: 20 : 34, 120

bamboo leaves (*veṇupatrikā*) Bambusa bambos, Druce. See NK: 1, #307 : 98

banyan (*nyagrodha*) Ficus bengalensis, L. See HK :

barley (*yava*) Hordeum vulgare, L. See HK: 79

bearded premna (*vasuka*) Premna barbata Wall. (← *vasuhatṭa*), according to

Cakrapāṇidatta. See the discussion by T. B. Singh and Chunekar

(GVDB: 362–363), where other candidate species such as Osmanthus, Calotropis, and Trianthema are discussed. T. B. Singh and Chunekar (GVDB: 363) note that when *vasuka* is mentioned with *vasira*, two varieties of salt are often meant (see *vasukavasirā*).

See also NK: #1299 who identifies it with Indigofera enneaphylla, Linn. (Birdsville Indigo), apparently without controversy :

beautyberry (*priyaṅgu*) → śyāmā.

Callicarpa macrophylla, Vahl. See

AVS: 1, 334, NK: 1, #420. Some say also Setaria italica Beauv. GVDB: 263–264.

See also GVDB: 413 : 34, 116, 121

beautyberry (*śyāmā*) Callicarpa macrophylla, Vahl. See AVS: 1, 334, NK: 1, #420 : 74, 96, 98

beggarweed (*aṃśumatī*) Desmodium gangeticum (L.) DC (Dymock: 1, 428, GJM1: 602, NK: 1, #1192; ADPS: 382, 414 and AVS: 2, 319, 4.366 are confusing) : 116

beggarweed (*vidārigandhā*) → śālapanṇī. Desmodium gangeticum (L.) DC. See Dymock: 1, 428, GJM1: 602, cf. NK: 1, #1192; ADPS: 382, 414 and AVS: 2, 319, 4.366 are confusing : 43, 79

beggarweed (*śālapanṇī*) → sthirā.

- Desmodium gangeticum (L.) DC. See *Dymock*: 1, 428, *GJM*1: 602, *NK*: 1, #1192; *ADPS*: 382, 414 and *AVS*: 2, 319, 4.366 are confusing:
- Bengal quince (*bilva*) *Aegle marmelos* (L.) Corr. See *AVS*: 1, 62, Chevallier 159, *NK*: 1, #62, (*MW*: 732a) : 63, 70, 72, 76
- 'big poison' (*mahāviṣa*) unknown. See ? :
- 'big thorn apple' (*mahākarambha*) *Datura metel*, L.?. See thorn apple (*karambha*) :
- bitumen (*adrija*) → *śilājī*. A tar-like, black, resinous rock exudate. See *AyMahā*: 1, 21 : 130
- black cardamom (*Xhareṇu*) *Amomum subulatum*, Roxb.?. See *PVS Caraka* 2.734, *AVS*: 1, 128, *NK*: 1, #154, *pace GVDB*: 467–468 :
- black creeper (*pālindī*) *Ichnocarpus frutescens*, (L.) R.Br. or *Cryptolepis buechanani*, Roemer & Schultes. See *AVS*: 3, 141, 145, 203, *NK*: 1, #1283, 1210, *ADPS*: 434. Ḍalhaṇa on SS 5.1.82 identified *pālindī* with *trivṛt* (turpeth) and T. B. Singh and Chuneekar (*GVDB*: 246) supported this as a usual identification : 98, 101, 115, 116
- black pepper (*marica*) *Piper nigrum*, L. See *ADPS*: 294, *NK*: 1, #1929 : 79
- black pepper (*vallīja*) → *marica*. *Piper nigrum*, L.?. See *NK*: 1, #1929; Rā.6.115, Dha.4.85, Dha.2.88 :
- blackboard tree (*saptachada*) *Alstonia scholaris* R. Br. *GVDB*: 420 : 97
- blackbuck (*hariṇa*) *Antelope cervicapra*, L. See *BIA*: 270 *IW*: 95, 165, *et passim* : 101
- 'blade' (*kartariya*) unknown. See ? :
- blue water-lily (*utpala*) *Nymphaea stellata*, Willd. See *GJM*1: 528, *IGP* 790; *Dutt*: 110, *NK*: 1, #1726 : 25, 96, 115, 116
- bottle gourd (*ālābūka*) *Lagenaria siceria* (Molina) Standl. See *IGP* 645, *NK*: 1, #1419 :
- bulrush (*kaṣeru*) "Two species, *Scirpus kysoor* Roxb., and *S. grossus* Linn. f. are used" *GVDB*: 85. Also *kaṣeruka* and *kaseru* : 74, 75, 78
- calamine lotion (*amṛtāsaṅga*) → *amṛtāsaṅga*. Zinc carbonate. See *NK*: 2, #56 :
- camphor (*karpūra*) → *śītaśiva*. *Cinnamomum camphora*, (L.) Sieb. See *IGP* 253 :
- cannabis (*vijayā*) *Cannabis sativa*, L. See *AVS*: 1, 356, *NK*: 1, #442 :
- caper (*karīra*) *Capparis decidua* (Forsk.) Edgew. See *AVS*: 1, 368, (*MW*: 255b) :
- cardamom (*elā*) *Elettaria cardamomum*, Maton. See *AVS*: 2, 360, *NK*: 1, #924, *Potter_{rev}*: 66 : 70, 116, 121
- carmarī (*carmarī*) unknown. See ? :
- carray cheddie (*gāṅgerukī*) → *viśvadevā*. *Canthium parviflorum*, Lam. See *AVS*: 1, 366 f :
- cassia cinnamon (*patra*) *Cinnamomum tamala*, (Buch.-Ham.) Nees. See *AVS*: 2, 84, *NK*: 1, #589 : 70, 76, 98, 116
- castor oil tree (*gandharvahaṣṭa*) → *eraṇḍa*. *GVDB*: 135, *K&B*: 3, 2277 : 39, 72
- castor-oil (*eraṇḍa*) *Ricinus communis*, L. See *NK*: 1, #2145, *Chopra*: 214 : 44
- certain minerals (*tārāvitāra*) Unknown. It is not even certain that these are minerals. The variant reading in the vulgate, *tāraḥ sutāraḥ* was glossed by Ḍalhaṇa on 5.3.14 (*Su* 1938: 568) as follows *tāro rūpyaṃ, sutāraḥ pāradaḥ*, "tāra means silver; sutāra means mercury." : 120
- Ceylon iron wood (*kṣīrikā*) *Mimusops hexandra*, Roxb. (*GVDB*: 126–127) :
- chaff (*kāṇḍana*) The word *kāṇḍana* is not found in dictionaries; *kaṇḍana* is threshing, separating the chaff from the grain in a mortar. Cf. Hemādri's *Caturvargacintāmaṇi* (*PWK*: 2, 8) (*Śiromaṇi* 1873: 1, 138: 21, citing the *Vāyupurāṇa*) : 26, 222
- chebulic myrobalan (*harītakī*) *Terminalia chebula* Retz. *GVDB*: 466 : 77, 97
- cherry (*elavālu*) *Prunus cerasus*, L.?. See *BVDB* 58, *NK*: 1, #2037, *GVDB*: 58 : 116

- chital deer (*pr̥ṣata*) *Axis axis*, Erxleben. See [BIA](#): 292, [IW](#): 93 : 101
- ‘choice tree’ (*varadāru*) unknown. See ? :
- chukar partridge (*cakora*) *Alectoris chukar*. See [Woodcock](#) 1980: 45 :
- cinnamon (*tvac*) *Cinnamomum cassia*, Blume. See [NK](#): 1, #579 :
- citron (*mātuluṅga*) *Citrus medica*, Linn. [GVDB](#): 276, 306. Also spelled *mātuliṅga*, *mātulaṅga*, *mātulāṅga* : 63, 76, 81, 82
- cluster fig (*udumbara*) *Ficus racemosa*, L. See [ADPS](#): 487 :
- cobra’s saffron (*nāgapuṣpa*) → *nāgakeśara*. *Mesua ferrea*, L. See [NK](#): 1, #1595, [GVDB](#): 220 : 116
- common crane (*krauñca*) *Grus grus*. See [Woodcock](#) 1980: 47 :
- common mallow (*suvarcalā*) perhaps *Malva sylvestris*, L. A difficult plant to identify, see T. B. Singh and Chuneekar ([GVDB](#): 280, 440–441) :
- common mallow (*sūryāvarta*) *Malva sylvestris*, L. *Cakrapānidatta* and *Ḍalhaṇa* identify it with *suvarcalā*, itself a difficult plant to identify. Perhaps *Helianthus*, see T. B. Singh and Chuneekar ([GVDB](#): 280) :
- corky coral tree (*pāribhadra*) *Erythrina suberosa* Roxb. See [GVDB](#) 245 : 120
- costus (*kuṣṭha*) *Saussurea costus*, Clarke. See [NK](#): 1, #2239 : 70, 76, 98, 116, 121
- cottony jujube (*kākolī*) *Ziziphus mauritana*, Lam. See [IGP](#): 1233, [NK](#): 1, #2663; [IGP](#) 1233. Cf. [NK](#): 1, #1170 : 69, 75, 76
- country mallow (*atibalā*) *Abutilon indicum*, (L.) Sweet, but may be other kinds of mallow, e.g., *Sida rhombifolia*, L.. See [NK](#): 1, #11, [IGP](#): 1080, [NK](#): 1, #2300, [ADPS](#): 71, 77 : 43, 75, 78, 164
- country sarsaparilla (*anantā*) *Hemidesmus indicus*, (L.) R. Br. See [ADPS](#): 434, [AVS](#): 3, 141–5, [NK](#): 1, #1210. But see [GVDB](#): 13 for complications that may suggest that it is to be equated with *sārivā*, which may sometimes be *Cryptolepis* or *Ichnocarpus frutescens* R. Rr. ([GVDB](#): 429–431) : 43, 105, 115, 116, 120
- crape jasmine (*nata*) → crape jasmine [GVDB](#): 215 : 215, 217
- crape jasmine (*tagara*) *Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schultes. See [GJM](#)1: 557, [AVS](#): 5, 232. Synonym of crape jasmine. But some say *Valeriana jatamansi*, Jones See [GVDB](#): 173–174 for discussion (and charming comments on brain liquid testing). Some say *tagara* is Indian rose-bay or Indian valerian, but there remain many historical questions about the ancient and regional identities of this plant See, e.g., [AVS](#): 5, 334 : 70, 76, 98, 116, 215, 217
- crimson trumpet-flower tree (*pāṭalā*) *Stereospermum chelonides*, (L. f.) A. DC. See [GJM](#)1: 573, [AVS](#): 5, 192 ff, [ADPS](#): 362 f, [AVS](#): 3, 1848 f, [IGP](#) 1120, [Dymock](#): 3, 20 ff : 120
- cucumber (*trapusa*) *Cucumis sativus*, L. See [AVS](#): 2, 231, [NK](#): 1, #731 :
- cuscus grass (*uśīra*) *Andropogon murcatus*, Retz. Also “vetiver grass.” See [NK](#): 1, #180 : 98
- ‘dangling’ (*lambā*) unknown. See ? :
- datura (*dhattūra*) *Datura metel*, L. See [AVS](#): 2, 305 (cf. *Abhidhānamāñjarī*), [NK](#): 1, #796 ff. [Potter_{rev}](#): 292 f, [ADPS](#): 132 : 40
- deodar (*bhadradāru*) *Cedrus deodara*, (Roxb.ex D.Don) G. Don. See [AVS](#) 41, [NK](#): 1, #516 : 34, 74, 79, 116
- deodar (*devadāru*) *Cedrus deodara* (Roxb.) Loud. [GVDB](#): 206–207 : 63, 76, 164
- dhaman tree (*dhanvaṅga*) → *dhammaṇa*? *Grewia tiliaefolia*, Vahl. See [AVS](#): 3, 104, [IK](#), [AVS](#): 1, 386, [IGP](#) 529 (*tiliifolia*) :
- dried ginger (*śuṇṭhī*) *Zingiber officinale*,

- Roscoe. See **ADPS**: 50, **NK**: 1, #2658, **AVS**: 5, 435, **IGP**: 1232 : 74
- dried meat (*vallūra*) **MW**: 929, **AyMahā**: 1, 730. The term is used, rarely, in both the CS (1.5.10) and SS (1.13. 16, 6.42.75–76). It is a Dravidian loanword and occurs in the *Arthaśāstra* etc. (**KEWA**: 3, 167) : 25
- drum-giver (?) (*lambaradā*) Unknown; cf. **GVDB**: 348 : 105
- elixir salve (*rasāñjana*) → *añjana*. See Indian barberry : 34, 44
- embelia (*viḍaṅga*) *Embelia ribes*, Burm. f. See **ADPS**: 507, **AVS**: 2, 368, **NK**: 1, #929, **Potter_{rev}**: 113 : 34, 70, 116
- emblic (*āmālaka*) *Phyllanthus emblica*, L. See **AVS**: 4, 256 : 77, 78
- emetic nut (*karaghāṭa*) Probably a synonym for *karahāṭa* (emetic nut), q.v., **GVDB**: 74 : 216
- emetic nut (*karahāṭa*) *Randia dumetorum*, Lamk. See **GVDB**: 291–292 and **NK**: 1, #2091. T. B. Singh and Chuneekar (**GVDB**: 74, 77–78) noted that it may be a synonym for *karaghāṭa*, emetic nut, and pointed rather to *Gardenia turgida* Roxb. on the basis of local knowledge in U. P. : 216, 218
- emetic nut (*madana*) *Randia dumetorum*, Lamk. See **NK**: 1, #2091 : 96, 166
- false daisy (*subhaṅgurā*) (su)bhaṅgura = *bhṛṅga*? *Eclipta prostrata* (L.) L. See **GVDB**: 288 : 104
- fermented rice-water (*dhānyāmla*) → *kāñjī*, *kāñjikā*, *sauvīra*. **GVDB**: 458, **NK**: 2, appendix VI, #18 : 41, 42
- fern (*ajaruhā*) *Nephrodium* species **GVDB**: 7, uncertain. Perhbaps *Christella dentata* (Forssk.) Brownsey & Jermy, which is reported to have folk applications against skin diseases in India : 100
- fire-flame bush (*dhātakī*) *Woodfordia fruticosa* (L.) Kurz. See **AVS**: 5, 412, **NK**: 1, #2626 : 97
- five-leaved chaste tree (*śephālikā*) *Vitex negundo*, L. See **NK**: 1, #2603 (cf. use of leaves), **IGP**: 1210a, **MW**: 1088b :
- flax (*atasī*) *Linum usitatissimum*, L. See **NK**#1495 : 75
- ‘foam-stone’ (*phenāśma*) unknown. See ? : fragrant lotus (*saugandhika*) A type of *kumuda* or *utpala* (**GVDB**: 457) : 25
- galls (*karkaṭa*) *Rhus succedanea*, L. See **NK**: 1, #2136 :
- garden pea (*kalāya*) *Pisum sativum*, L. See **AVS**: 4, 308, **IGP** 901; cf. **NK**: 1, #1940 :
- garjan oil tree (*aśvakarṇa*) *Dipterocarpus turbinatus* Gaertn. f. See **GVDB**: 28, **Chopra**: 100 : 120
- ‘gentle’ (*somā*) *Ruta graveolens*, L., or *Sarcostemma brevistigma*, W & A, etc. See **NK**: 1, #2179, 2228; **Potter_{rev}**: 262 :
- giant potato (*kṣīravidārī*) possibly → *kṣīraśukla*. *Ipomoea mauritiana*, Jacq. See **ADPS**: 510, **AVS**: 3, 222, **AVS**: 3, 1717 ff : 75, 218, 220, 221
- ginger (*mahaśadha*) *Zingiber officinale*, Roscoe. See **ADPS**: 50, **NK**: 1, #2658, **IGP**: 1232 : 101
- ‘gladdener’ (*nandana*) unknown. See ? :
- gold (*hema*) gold : 116
- gold and sarsaparilla (*surendragopa*) Unknown. Ḍalhaṇa on 5.3.15 (**Su** 1938: 568) glossed *surendra* as “gold” and *gopā* as “Indian sarsaparilla.” He also noted other opinions that *surendra* was “Tellicherry bark” : 120
- golden shower tree (*rājadruma*) *rājadruma* = *āragvadha*. *Cassia fistula* L. See **GVDB** 37 : 120
- golden shower tree (*āragvadha*) *Cassia fistula* L. See **GVDB** 37 : 77
- gourd (*alābu*) *Lagenaria siceraria* Standl. **GVDB**: 25. Some say *Lagenaria vulgaris*, Seringe (**NK**: 1, #1419) but this is not appropriate for blood-letting : 21, 22, 97
- green gram (*māṣa*) *Vigna radiata* (L.) R.

- Wilcz. See **ADPS**: 296, **IGP** 1204 : 34, 75, 165
 'gutboiler' (*antrapācaka*) unknown. See ? :
 hare foot uraria (*prśniparṇī*) → *sahā*?
Uraría lagopoides, DC. See **GJM1**: 577, **Dymock**: 1, 426, **AVS**: 1, 750 ff, **NK**: 1, #2542; **ADPS**: 382, **AVS**: 2, 319 and **AVS**: 4, 366 are confusing : 74, 75
 heart-leaf sida (*balā*) *Sida cordifolia*, Linn. See **ADPS**: 71, **NK**: 1, #2297 : 43, 75, 78, 80, 116, 164
 heart-leaved moonseed (*amṛtavallī*) See heart-leaved moonseed (*amṛtā*) : 164
 heart-leaved moonseed (*amṛtā*) → *guḍūcī*. *Tinospora cordifolia*, (Willd.) Hook.f. & Thoms.? See **ADPS**: 38, **NK**: 1, #2472, 624, *Dastur* #229 : 98, 114, 217
 heart-leaved moonseed (*guḍūcī*) *Tinospora cordifolia* (Willd.) Miers. **GVDB**: 141–142, **NK**: 1, #624, #2472 : 76
 heart-leaved moonseed (*somavallī*) *Tinospora cordifolia* (Thunb.) Miers. **GVDB**: 456. Likely, but uncertain : 98
 heliotrope (*hastīśuṇḍa*) → *ibhagandhā*? *Heliotropium indicum*, L. See **AVS**: 3, 136, **NK**: 1, #1203 :
 henna (*madayantikā*) *Lawsonia inermis*, L. See **AVS**: 3, 303, **NK**: 1, #1448, **Potter**_{rev.}: 151 : 99
 hill myna (*sārikā*) *Acridotheres tristis tristis*, L., etc. See *Ali* #1006, *Dave* (1985: 28 ff.), *Woodcock* (1980: 119) :
 Himalayan mayapple (*vakra*) *Podophyllum emodi*, Wall. (**NK**: #1971). But perhaps a synonym of crape jasmine and crape jasmine (**GVDB**: 354) : 121
 Himalayan monkshood (*ativiṣā*) → *viṣā* *Aconitum heterophyllum* Wall. **GVDB**: 12, **NK**: 1, #39. Also "atis roots" : 67, 99, 101, 121
 Himalayan monkshood (*viṣā*) → *ativiṣā* **GVDB**: 12, 373 : 221
 hogweed (*punarnavā*) *Boerhaavia diffusa*, L. See **ADPS**: 387, **AVS**: 1, 281, **NK**: 1, #363 : 77, 99, 115
 Holostemma creeper (*jīvantī*) → *sūryavallī*? *Holostemma ada-kodien*, Schultes. See **ADPS**: 195, **AVS**: 3, 167, 169, **NK**: 1, #1242 : 78, 220
 honey (*kṣaudra*) Eight varieties of honey are described in the SS (**NK**: 2, Appendix 192). *Kṣaudra* is the product of a small bee of tawny colour, called *kṣudra* : 83, 101
 horned pondweed (*śaivāla*) also *śaivāla*, *śevāra*. *Zannichellia palustris* L. The uncertainties of this identification are discussed by T. B. Singh and Chuneekar (**GVDB**: 409). Sometimes identified with scutch grass (*dūrvā*) (**GVDB**: 409). Identified as *Ceratophyllum demersum* Linn. ("hornwort") by **AVS**: 2, 56–57x : 76, 217, 221
 hornwort (*jalanīlikā*) *Ceratophyllum demersum*, L. See **AVS**: 2, 56, **IGP** 232 :
 hornwort (*jalaśūka*) → *jalanīlikā*. *Ceratophyllum demersum*, L. See **AVS**: 2, 56, **IGP**: 232. T. B. Singh and Chuneekar (**GVDB**: 166) suggest horned pondweed. *Ḍalhaṇa* noted on 1.16.19 (*Su* 1938: 79) that some people interpret it as a poisonous, hairy, air-breathing, underwater creature : 43
 horseradish tree (*śīgru*) *Moringa oleifera* Lam. See **IGP** 759, **GJM1**: 603, **Dymock**: 1, 396 : 76, 77
 hyacinth bean (*śimbī*) *Dolichos lablab*, L. See **NK**: 1, #870 :
 Indian antelope (*eṇa*) *Antelope cervicapra*, L. See **BIA**: 70 :
 Indian barberry (*añjana*) → *rasāñjana*, *dāruharidrā*. *Berberis aristata*, DC. **Dymock**: 1, 65, **NK**: 1, #335, **GJM1**: 562, **IGP**: 141 : 44, 100, 216
 Indian barberry (*dāruharidrā*) *Berberis aristata*, DC. See **Dymock**: 1, 65, **NK**: 1, #685, **GJM1**: 562, **IGP** 141 : 115, 116
 Indian barberry (*kālīyaka*) → *dāruharidrā*, *añjana*. *Berberis aristata*, DC. See **Dymock**: 1, 65, **NK**: 1, #685, **GJM1**: 562,

- IGP: 141: 98
- Indian beech (*naktamāla*) *Pongamia pinnata*, (L.) Pierre. See AVS: 4, 339, NK: 1, #2003: 34, 72
- Indian ipecac (*payasyā*) Uncertain. Possibly *Tylophora indica* (Burm.f.) Merr. Perhaps a synonym of *panacea* twiner, giant potato, purple *roscoea*, and plants like asthma plant and Gulf sandmat (GVDB: 237–238). Also “curds” when not a plant: 43, 76, 220
- Indian kudzu (*vidārī*) → *payasyā*. *Pueraria tuberosa* (Willd.) DC. See ADPS: 510, AVS: 1, 792 f, AVS: 4, 391; not Dymock: 1, 424 f. See GJM2: 444, 451, AVS: 1, 187, but AVS: 3, 1719 = *Ipomoea mauritiana*, Jacq: 43, 63
- Indian laburnum (*śampāka*) *Cassia fistula*, L. See ADPS: 48, AVS: 2, 11 ff, AVS: 2, 854, IGP 215:
- Indian laurel (*plakṣa*) *Ficus microcarpa*, L. f. See ADPS: 377:
- Indian madder (*mañjiṣṭhā*) *Rubia cordifolia*, L. See IGP, Chopra: 215, GVDB: 289: 39, 116
- Indian mottled eel (*varmimatsya*) Almost certainly the mottled eel. MW: 962c noted that the *varmi* fish “is commonly called *vāmi*.” The “vam fish,” or “বান মাছ (*bān māch*)” in Bengal, is a marine and freshwater eel, *Anguilla bengalensis*. It is the most common eel in Indian inland waters and a prized food fish (Froese and Pauly 2022). However, some NIA languages identify the “vam” fish with the Indian Pike Conger, *Congresox talabonides* (Bleeker) (Talwar and Kacker 1984: 235, 236): 23
- Indian mustard (*sarṣapa*) *Brassica juncea*, Czern. & Coss. See AVS: 1, 301, NK: 1, #378: 26
- Indian pennywort (*maṇḍūkapaṇṇī*) *Centella asiatica* (L.) Urban. See GVDB: 290, ADPS: 289–291:
- Indian sarsaparilla (*sārivā*) → *anantā*. *Hemidesmus indicus*, (L.) R. Br. ADPS: 434, AVS: 3, 141–5, NK: 1, #1210; and black creeper, *pāṇḍī*. *Ichnocarpus frutescens*, (L.) R.Br. or *Cryptolepis buechanani*, Roemer & Schultes AVS: 3, 141, 3.145, 3.203, NK: 1, #1283, 1210, ADPS: 434: 115, 116, 216
- Indian snakeroot (*sarpagandhā*) *Rauvolfia serpentina*, (L.) Benth. ex Kurz. See NK: 1, #2099, ADPS: 439, GVDB: 425; cf. SS 5.5.76–78:
- Indian spinach (*pūtīkā*) *Basella alba*, L. See NK: 1, #318 (rubra), ADPS: 489, AVS: 1, 253, IGP 129b:
- indigo (*nīlinī*) *Indigofera tinctoria*, L. See NK: 1, #1309:
- Indrajao (*vrkṣaka*) → *indrayava*, *indrabīja*, *kaliṅga*, and *kuṭaja*. *Holarrhena antidysenterica* Wall. GVDB: 376, 45 and 84: 164
- jackfruit (*panasa*) *Artocarpus heterophyllus*, Lam. See NK: 1, #249, IGP 99:
- jambul (*jambū*) *Syzygium cumini*, (L.) Skeels. See ADPS: 188, NK: 1, #967, Potter_{rev}: 168, Wujastyk 2003a: 97
- jasmine (*mālatī*) *Jasminum grandiflorum*, L. See NK: 1, #1364: 98
- jequirity (*guñjā*) *Abrus precatorius*, L. See AVS: 1, 10, NK: 1, #6, Potter_{rev}: 168: 104, 105
- jequirity (*kālakūṭa*) *Abrus precatorius*, L.? Cf. RRS 21.14. See AVS: 1, 10, NK: 1, #6, Potter_{rev}: 168:
- ‘juice-cooker’ (*sārapāka*) unknown. See ? : (?) (*karaṭā*) Not in GVDB. Cf. perhaps *karahāṭa* (emetic nut): 105
- khesari pea (*tripuṭa*) *tripuṭa* (kalāya). *Lathyrus sativus*, L. See IGP 651, NK: 1, #1439:
- koel (*kokila*) *Eudynamys scolopacea*. See Woodcock 1980: 66:
- kumudvatī (*kumudvatī*) unknown. See ? :
- lac (*jatu*) *Kerria lacca* (Kerr.). See <http://www.icar.org.in/ilri/default.htm>: ■

- lac (*lākṣā*) *Kerria lacca* (Kerr.). See [GJM1](#): 445, [NK](#): 2, #32. Watt ([WattComm](#): 1053–1066) is characteristically informative, and is definite about the antiquity of lac in India : 121
- lāmajja grass (*lāmajj*) *Andropogon iwarancusa*, Roxb. See [NK](#): 1, #176 :
- lāmajja grass (*uśīrabhedā*) → *lāmajja*. *Andropogon iwarancusa*, Roxb. See [NK](#): 1, #176 :
- leadwort (*agnīśikhā*) *Plumbago zeylanica* (or *rosea*?), L. See [NK](#): 1, #1966, 1967 : 219
- leadwort (*citraka*) *Plumbago zeylanica* (or *indica*?), L. See [RĀ](#). 6.124, [ADPS](#): 119, [NK](#): 1, #1966, 1967 : 34, 67, 72, 82
- leadwort (*pālaka*) → *citraka*. *Plumbago zeylanica* (*indica*? *rosea*?), L. See [RĀ](#). 6.124, [ADPS](#): 1, 119, [NK](#): 1, #1966, 1967 :
- leadwort (*vidyutśikhā*) Synonym of *agnīśikhā* (leadwort), q.v. :
- liquorice (?) (*klītaka*) *Glycyrrhiza glabra*, L.? [GVDB](#): 123–124 discuss the many difficulties in identifying this plant : 104
- liquorice (*madhuka*) see *yaṣṭīmadhuka* : 43, 74–79, 81, 101, 114, 116
- liquorice (*yaṣṭīmadhuka*) *Glycyrrhiza glabra*, L. [AVS](#): 3, 84, [NK](#): 1, #1136, [GVDB](#): 329 f. : 44
- ‘little bamboo’ (*veṇukā*) *Bambusa bambos*, Druce?. See [NK](#): 1, #307 :
- lodh tree (*lodhra*) *Symplocos racemosa*, Roxb. See [GJM1](#): 597, [ADPS](#): 279 f, [NK](#): 1, #2420. T. B. Singh and Chuneekar ([GVDB](#): 351–352) notes that there are two varieties, *S. racemosa*, qualified as *śāvara*, and *S. crataegoides* Buch.-Ham. for *paṭṭikā lodhra* : 34, 116
- lodh tree (*rodhra*) *Symplocos racemosa*, Roxb. See [ADPS](#): 279, [NK](#): 1, #2420 :
- lodh tree (*śāvara*) → *lodhra*. *Symplocos racemosa*, Roxb. See [ADPS](#): 279, [NK](#): 1, #2420 :
- long pepper (*māgadha*) *Piper longum*, L. See [NK](#): 1, #1928; but cf. [AVS](#): 3, 245 : 100
- long pepper (*pippalī*) *Piper longum*, L. See [ADPS](#): 374, [NK](#): 1, #1928 : 72, 77, 81–83, 101, 116, 164
- lotus stalk (*mṛṇālā*) “Leaf stalk of sacred lotus” [GVDB](#): 318 : 76
- luffa (*garāgarī*) → *gargaraka*? *Luffa echinata*, Roxb. See [NK](#): 1, #1517 :
- luffa (*koṣātaka*) = *koṣītakī*, luffa :
- luffa (*koṣātakya*) *Luffa cylindrica*, (L.) M. J. Roem. or *L. acutangula*, (L.) Roxb. See [ADPS](#): 252, [NK](#): 1, #1514 etc :
- luffa (*koṣītakī*) = *koṣātakī*. *Luffa cylindrica*, (L.) M. J. Roem. or *L. acutangula*, (L.) Roxb. [ADPS](#): 252–253, [NK](#): 1, #1514 etc. [GVDB](#): 121 : 97, 114, 219
- luffa gourd (*koṣavatī*) = *koṣītakī*, luffa : 114
- mahua (*madhūka*) *Madhuca longifolia*, (Koenig) Macbride. See [AVS](#): 3, 362 f :
- maidenhair fern (*haṃsāhvayā*) *Adiantum lunulatum* Burm f. [GVDB](#): 463 : 164
- mango (*āmra*) *Mangifera indica* Linn. [GVDB](#): 37 : 97
- marking-nut tree (*aruṣkara*) *Semecarpus anacardium* L. See *bhallātaka* (marking-nut tree) : 105
- marking-nut tree (*bhallātaka*) *Semecarpus anacardium*, L. See [NK](#): 1, #2269, [AVS](#): 5, 98 : 72, 100, 219
- medhshingi (*vijayā2*) *Dolichandrone falcata* (DC.) The *Sauśrutaniḥṣṇu* gives a number of synonyms for *vijayā* (Suvedī and Tivārī 2000: 5.77, 10.143). But one of them, *viṣāṇī* (also *meṣaśṛṅgī*), is sometimes equated with *Dolichandrone falcata* (DC.) Seemann ([ADPS](#): 518; [GVDB](#): 373 f, a plant used as an abortifacient and fish poison ([NK](#): #862) : 105
- Midday flower (*bandhūka*) *Pentapetes phoenicea*, L. See [NK](#): 1, #1836, [GVDB](#): 268 :
- migraine tree (*agnimantha*) *Premna corymbosa*, Rottl. See [AVS](#) 1927,

- ADPS: 21, NK: 1, #2025, AVS: 4, 348;
GJM1: 523: = *P. integrifolia/serratifolia*,
L: 114
- milk-white (*kṣīraśuklā*) An unidentified
plant. GVDB: 126: see purple roscoea
and giant potato: 43, 221
- mongoose (*nakula*) *nakula*. *Urva edwardsii*
or the often sympatric *U.*
auropunctatus (small Indian
mongoose, usually an eater of smaller
creatures than snakes) (BIA: ch. 5), On
mongooses and snakes, see BIA: 98–99;
IW: 112: 101
- monitor lizard (*godhā*) *Varanus*
bengalensis, Schneider. See
Reptiles: 58: 43, 101
- monkey jack (*lakuca*) *Artocarpus lakoocha*,
Roxb. ex Buch.-Ham. See GJM1: 597,
IGP 99, IPM 3.2338f., pace AVS: 1, 215:
'muddy' (*kardama*) unknown. See ?:
- mung beans (*mudga*) *Phaseolus radiatus* L.
GVDB: 310–311: 75, 78, 148
- mung beans (*māṣaka*) *Phaseolus mungo*
Linn. GVDB: 308: 98
- munj grass (*nārācaka*) *Saccharum*
bengalense, Retz.?. See NK: 1, #2184:
- myrobalan (*abhayā*) *Terminalia chebula*,
Retz. See ADPS: 172, NK: 1, #2451,
Potter_{rev}: 214: 67, 114, 121
- myrobalans (*pathyā*) *Terminalia chebula*
Retz. See NK: 1, #2451:
- natron (*suvarcikā*) Sodium carbonate.
NK: 2, #45. Ḍalhaṇa identifies *suvarcikā*
with *svarjikṣāra* 4.8.50 (Su 1938: 441):
82, 116
- neem tree (*nimba*) *Azadirachta indica* A.
Juss. GVDB: 226: 40, 164
- nutgrass (*kuruvinda*) Unknown. Ḍalhaṇa
on 5.3.15 (Su 1938: 568) glossed the
term as nutgrass, but noted other
opinions that it was a whetstone or a
very special metallic gem. T. B. Singh
and Chunekar (GVDB: 108) added that
it could be a variety of rice, *ṣaṣṭika*
dhānya: 120
- nutgrass (*mustaka*) *Cyperus rotundus*, L.
See ADPS: 316, AVS: 2, 296, NK: 1,
#782:
- nutgrass (*mustā*) *Cyperus rotundus*, L. See
ADPS: 316, AVS: 2, 296, NK: 1, #782:
220
- oleander spurge (*snuhī*) *Euphorbia*
neriifolia, L., or *E. antiquorum*, L. See
ADPS: 448, AVS: 2, 388, AVS: 3, 1,
NK: 1, #988, IGP 457b:
- orpiment (*haritāla*) *Arsenii trisulphidum*.
See NK v. 2, p. 20 ff:
- panacea twiner (*arkaparṇī*) See *arkapuṣpī*,
panacea twiner:
- panacea twiner (*arkapuṣpī*) → *arkaparṇī*,
Tylophora indica (Burm. f.) Merr.
GVDB: 23–24. Maybe identical to
Indian ipecac, giant potato and similar
sweet, milky plants. See GVDB: 24, 127,
238, 441, 443 for discussion. For
discussion in the context of
Holostemma creeper, see ADPS: 195
and AVS: 3, 171. The etymology of the
name suggests *Helianthus annuus* Linn.,
but this plant is native to the Americas:
115, 218, 220
- parakeet (*śuka*) *Psittacula*
krameri/eupatria/cyanocephala. See
Woodcock 1980: 64:
- peacock (*mayūra*) *Pavo cristatus*. See
Woodcock 1980: 39:
- peas (*hareṇu*) *hareṇu* = *satīna*. *Pisum*
sativum, L. T. B. Singh and Chunekar
(GVDB: 419–420, 467–468) notes that
two plants are usually meant under this
name, but there is no agreement on the
identity of the second: 76, 115, 116, 121
- peepul tree (*aśvattha*) *Ficus religiosa*, L.
See ADPS: 63: 123
- periploca of the woods (*meṣaśṛṅga*)
Gymnema sylvestre (Retz.) R. Br. See
AVS: 3, 107, NK: 1, #1173: 100
- pheasant peacock (*jīvajīvaka*) *jīvajīvaka* ?.
See ?:
- plants like asthma plant and Gulf sandmat

- (*kṣīriṇī*) various milky plants, perhaps including *Euphorbia hirta* Linn. (asthma plant) and *E. microphylla* Heyne (Gulf sandmat) (GVDB: 127) : 218
- plumed cockscomb (*indīvara*) Uncertain; possibly *Celosia argentea* Linn. But see the useful discussion in GVDB: 44–45. Possibly another name for thorn apple (*karambha*), q.v. : 223
- pointed gourd (*paṭola*) *Trichosanthes dioica*, Roxb. GVDB: 232–233 : 76, 114
- poison berry (*brhatī*) *Solanum violaceum*, Ortega. See ADPS: 100, NK: 1, #2329, AVS: 5, 151 : 72, 77, 115, 116
- poison-altar (?) (*viṣavedikā*) Unknown. Possibly, at a guess, *viṣamuṣṭika* (strychnine tree)? GVDB: 373 Or *viṣā* (Himalayan monkshood) : 105
- pomegranate (*dādīma*) *Punica granatum* Linn. GVDB: 201–202 : 63, 81, 82
- pondweed (*paripelavā*) Normally a neuter noun. T. B. Singh and Chunekar (GVDB: 238, 264–265, 409) argued that *plava* and *śaivāla* are the same thing, and may be either *Zannichellia palustris*, L., or *Potamogeton pectinatus*, L. : 116
- pondweed (*śevāla*) *Zannichellia palustris* L. See horned pondweed : 25
- portia tree (*pārīṣa*) *Thespesia populnea* (L.) Sol. ex. Corr. See ADPS: 352 :
- prickly chaff-flower (*apāmārga*) *Achyranthes aspera*, L. See GJM1: 524 f, AVS: 1, 39, ADPS: 44 f, AVS: 3, 2066 f, Dymock: 3, 135 : 39, 43, 75, 221
- prickly chaff-flower (*vasīra*) also *vaśīra*. Perhaps *Achyranthes aspera*, L. GVDB: 362 describes several possible identities, including *sūryāvarta*, prickly chaff-flower and *markaṭatṛṇa*. See also *vasukavasira* (GVDB: 363) : 221
- prickly chaff-flower (*vaśīra*) See prickly chaff-flower :
- prickly-leaved elephant's foot (*gojihvā*) → *gojī*. *Elephantopus scaber*, L. See AVS: 2, 357 :
- purging nut (*dravantī*) → *mūṣikaparṇī*. *Jatropha curcas*, L. See AVS: 3, 261, NK: 1, #1374 :
- purging nut (*mūṣikā*) *Jatropha curcas*, L. See AVS: 3, 261, NK: 1, #1374 : 100
- purple calotropis (*arka*) *Calotropis gigantea*, (L.) R. Br. See ADPS: 52, AVS: 1, 341, NK: 1, #427, Potter_{rev}: 57, Chopra IDG: 305–308 : 34, 43, 72
- purple calotropis (*khadyotaka*) → *arka*? *Calotropis gigantea*, (L.) R. Br. See ADPS: 52, AVS: 1, 341, NK: 1, #427, Potter_{rev}: 63 :
- purple roscoeia (*kṣīrakākoli*) GVDB: 89 notes that many physicians use *Roscoeia procera* Wall. in this context. But the identification is uncertain. Possibly connected to milk-white or giant potato : 75, 218, 220
- racket-tailed drongo (*bhr̥ṅgarāja*) *Dicrurus paradiseus*. See Woodcock 1980: 123 :
- radish (*mūlaka*) *Raphanus sativus*, L. See NK: 1, #2098 : 79, 80
- rajmahal hemp (*moraṭa*) → *mūrvī*, *Marsdenia tenacissima* (Roxb.) Wight et Arn. Good discussion at GVDB: 314–316, 324 : 114
- rajmahal hemp (*mūrvī*) → *moraṭa*, *Marsdenia tenacissima* (Roxb.) Wight et Arn. Good discussion at GVDB: 314–316, 324 :
- rattan (*vetra*) *Calamus rotang*, L. See AVS: 1, 330, NK: 1, #413 :
- red chalk (*gairika*) *gairika* : 116
- red gourd (*bimbī*) *Coccinia indica*, W. & A. See PVS 1994.4.715; NK: 1, #534 : 97
- ribbed gourd (*karkoṭaka*) *Luffa acutangula*, (L.) Roxb.? (*Mormodica cochinchinensis*, Spreng.? Cf. *Luffa tuberosa*). See AVS: 3, 347 (NK: 1, #1640 1643; NK: 1, #1520) :
- rice grains (*taṇḍula*) *Oriza sativa*, Linn. Same as unhusked rice (*śālī*) GVDB: 174; or just "grains" : 26

- rice-grain chaff (*śālitaṇḍulakāṇḍana*) See chaff: 26
- rock salt (*saindhava*) See **NK**: 2, M#48, **WattComm**: 963–971: 26, 63, 82
- rosha grass (*dhyāmaka*) *Cymbopogon martinii* (Roxb.) Wats. See **AVS**: 2, 285, **NK**: 1, #177: 116
- sacred grass (*kuśa*) *Desmostachya bipinnata*, Stapf. See **AVS**: 2, 326, Kew: 75
- sacred lotus (*kamala*) *Nelumbo nucifera* Gaertn. **GVDB**: 73–74: 219
- sacred lotus (*padma*) *Nelumbo nucifera*, Gaertn. See **NK**: 1, #1698: 25, 76, 98
- sacred lotus (*prapuṇḍarika*) *Nelumbo nucifera*, Gaertn. See Dutt 110, **NK**: 1, #1698:
- sage-leaved alangium (*aṅkolla*) *Alangium salvifolium* (Linn. f.) Wang. **GVDB**: 5–6: 97
- sage-leaved alangium (*aṅkoṭa*) *Alangium salvifolium*, (L. f.) Wang. See **AVS**: 1, 77; cf. **NK**: 1, #88:
- sal tree (*śāla*) *Shorea robusta*, Gaertn.f. See **AVS**: 5, 124:
- sandalwood (*candana*) *Santalum album*, L. See **ADPS**: 111, **NK**: 1, #2217: 76, 78, 116
- sappan wood (*pataṅga*) *Caesalpinia sappan*, L. See **AVS**: 1, 323, **AVS**: 2, 847 f:
- sappanwood (*pattāṅga*) Also *pattāṅga*. *Caesalpinia sappan*, L. **AVS**: 1, 323, **K&B**: 2, 847 f, **GVDB**: 234: 44
- scaly, red-streaked fish (*cilicima*) An unidentified fish that is absolutely not to be eaten with milk. Described in Bhela (1.12.7), Caraka (1.26.83) and Suśruta (1.20.8, 13). Circular, red streaks, round eyes and prominent scales, and "normally goes on land." : scarlet mallow (*bandhujīva*) *Pentapetes phoenicea*, L. **NK**: #1836, **GVDB**: 268: 99
- scented pavonia (*bālaka*) *Pavonia odorata*, Willd. See **ADPS**: 498, **NK**: 1, #1822: 116
- scented pavonia (*toya*) → *bālaka*? *Pavonia odorata*, Willd. **ADPS**: 498, **NK**: 1, #1822:
- scutch grass (*dūrvā*) *Cynodon dactylon* (Linn.) Pers. (**GVDB**: 205): 217
- selu plum (*śelu*) *Cordia myxa*, L. non Forssk. See **GJM**1: 529 (2), **IGP**: 291b, cf. **AVS**: 3, 1677 f; cf. **AVS**: 2, 180 (C. *dichotoma*, Forst.f.), **NK**: 1, #672 (C. *latifolia*, Roxb.): 77, 114
- sesame (*tila*) *Sesamum indicum* L. **GVDB**: 183:
- sesame oil (*taila*) *Sesamum indicum* L. **GVDB**: 183: 43
- sheep (*urabhra*) *Ovis orientalis*, Gmelin?. See BIA 249:
- silk-cotton tree (*śālmālī*) *Bombax malabarica*. See Issar: 152:
- siris (*śirīṣa*) *Albizia lebbeck*, Benth. See **AVS**: 1, 81, **NK**: 1, #91: 114
- siris seeds (*śirīṣamāśaka*) *Albizia lebbeck*, Benth. See **AVS**: 1, 81, **NK**: 1, #91: 97
- small-flowered crape myrtle (*sidhraka*) *Lagerstroemia parviflora* Roxb. See **GVDB**: 432: 120
- 'snake mallow' (*mahābalā*) → *sahadevā*. *Sida spinosa*, L. See **NK**: 1, #2301, **ADPS**: 74, Index Kewensis:
- 'snake-killer' (*sarpaghātī*) unknown. See ?:
- snakeroot (*sugandhā*) → *sarpagandhā* *Rauvolfia serpentina* Benth. ex. Kurz. See *sarpagandhā*. But may be *Aristolochia indica* Linn. Has been identified with *nākulī*, or *gandhanākulī*. See (**GVDB**: 219, 436): 104
- soda crystals (*suvarjikā*) Sodium carbonate. See **NK**: 2, #45:
- spikenard (*jaṭāmāṃsī*) *Nardostachys jatamansi* DC **GVDB**: 163, etc:
- spikenard (*māṃsī*) *Nardostachys grandiflora*, DC. See **NK**: 1, #1691: 116
- spikenard (*nalada*) → *māṃsī*. *Nardostachys grandiflora*, DC. See **NK**: 1, #1691: 95
- spiny bitter cucumber (*karkāruka*)

- Momordica cochinchinensis (Lour.) Spreng., (Thunb.) Cogn.
See [AVS](#): 2, 1135, [IGP](#) 754 (or Beninkasa hispida? [AVS](#): 2, 1127; cf. [AVS](#): 1, 261):
strychnine tree (*viṣamuṣṭika*) Strychnos nux vomica Linn. [GVDB](#): 373: 221
sugar (*sitā*) Ḍalhaṇa makes this equation at 1.37.25 ([Su 1938](#): 162): 116
sugar (*śarkara*) Saccharum officinarum, Linn. [NK](#): #2182: 101
sugar cane (*ikṣu*) Saccharum officinarum, Linn. [NK](#): #2182: 101
sunflower (*sūryavallī*) → *ādityavallī*, *sūryamukhī*, Helianthus annuus Linn. [GVDB](#): 35, 443: 114
swan (*haṃsa*) haṃsa. ?. See ?:
sweet flag (*vacā*) Acorus calamus Linn. See [GVDB](#): 352–355: 75, 82
sweet melon (*eroṃṛuka*) Cucumis melo, L. See [AVS](#): 2, 227; [AVS](#): 2, 1140–3, [IGP](#) 325–6, [NK](#): 1, #729 (C. momordica):
sweet plants (*madhuravarga*) The sweet plants are enumerated at *Suśrutasaṃhitā* 1.42.11. See also [GVDB](#): 127: 43
sweet-scented oleander (*aśvamāra*) Nerium oleander, L. See [ADPS](#): 223, [NK](#): 1, #1709:
sweet-scented oleander (*aśvamāraka*) Nerium oleander, L. See [ADPS](#): 223, [NK](#): 1, #1709: 104
teak (*śāka*) Tectona grandis, L.f. See [AVS](#): 5, 245, ([MW](#): 1061):
Tellicherry bark (*kuṭaja*) Holarrhena pubescens Wall. ex G. Don, with Wrightia tinctoria and W. arborea considered [GVDB](#): 101–102, [ADPS](#): 267–270: 72, 216
thorn apple (*karambha*) Datura metel, L. See [GVDB](#): 76 for useful discussion. Also, [AVS](#): 2, 305 (cf. Abhidhānamāñjarī), [NK](#): 1, #796 ff. [Potter](#)_{rev.}: 292 f, [ADPS](#): 132. Possibly the same plant as plumed cockscomb (*indīvara*) ([GVDB](#): 76, 44–45): 105, 214, 221
three heating spices (*tryūṣaṇa*) śuṇṭhī (Dried ginger) Zingiber officinale, Roscoe. [ADPS](#): 50, [NK](#): 1, #2658, [AVS](#): 5, 435, [IGP](#) 1232, pippalī (long pepper) Piper longum, L. [ADPS](#): 374, [NK](#): 1, #1928, and marica (black pepper) Piper nigrum, L. [ADPS](#): 294, [NK](#): 1, #1929: 115
three-leaved caper (*varuṇa*) Crataeva magna (Lour.) DC. See [AVS](#): 2, 202; cf. [NK](#): 1, #696: 100
top layer of fermented liquor (*surāmaṇḍa*) [K&B](#): 2, 502, [NK](#): 2, appendix VI, #49, McHugh 2021: 39: 41, 42
tree cotton (*kārpāsa*) G. arboreum L. [ADPS](#): 231. Pace the identifications of T. B. Singh and Chuneekar ([GVDB](#): 92, 247), since G. barbadense L. is native to South America and G. herbaceum L. which is native to Africa: 40, 223
tree cotton (*picu*) See tree cotton (*kārpāsa*): 42, 44
turmeric (*gaurī*) Curcuma longa, L. See [ADPS](#): 169, [AVS](#): 2, 259, [NK](#): 1, #750: 76
turmeric (*haridrā*) Curcuma longa Linn. [GVDB](#): 465: 77, 115, 121
turmeric (*rajanī*) Curcuma longa, L. [ADPS](#): 169, [AVS](#): 2, 259, [NK](#): 1, #750: 26, 116
turpeth (*trivṛt*) → *trivṛtā*. Operculina turpethum (Linn.) Silva Manso = Ipomoea turpethum R. Br. [GVDB](#): 197.: 70, 101, 166, 214
two kinds of salt (*vasukavasira*) See the discussion by T. B. Singh and Chuneekar ([GVDB](#): 362–363), who note that when *vasuka* is mentioned together with *vasira*, two varieties of salt are often meant (see *vasukavasirā*): 63
unhusked rice (*śālī*) Oriza sativa, Linn. [GVDB](#): 395–396: 26, 221
various kinds of honey (*madhuvarga*) *Suśrutasaṃhitā*'s eight categories of honey. See *Suśrutasaṃhitā* 1.45.132 and

- Dutt: 278–279:
 velvet-leaf (*pāṭhā*) *Cissampelos pariera*, L.
 See ADPS: 366, NK: 1, #592, GJM1: 573,
 AVS: 1, 95; cf. AVS: 2, 277: 34, 67,
 82, 114
 velvet-mite (*indragopa*) *Kerria lacca*
 (Kerr.). Lienhard 1978: 96
 verbena (*bhāṅgī*) → *phañjī*.
Clerodendrum serratum, L. See
 AVS: 2, 121, ADPS: 87:
 verbena (*phañjī*) *Clerodendrum serratum*,
 L. See AVS: 2, 121, ADPS: 87: 99
 ‘Virāṭa’s plant’ (*vairāṭaka*) unknown. See ?:
 watered buttermilk (*udaśvit*) MW: 183: 97
 watermelon (*kāṇḍaka*) *Citrullus lanatus*
 (Thunb.) Matsum & Nak. See IGP
 257, NK: 1, #596, AVS: 2, 1149:
 weaver’s beam tree (*muṣkaka*) *Schrebera*
swietenoides, Roxb. See AVS: 5, 88,
 Lord, NK: 1, #2246: 72, 120
 ‘web-milk’ (*jālakṣīri*) unknown. See ?:
 wheat (*godhūma*) *Triticum vulgare*, L. See
 HK:
 white babool (*arimeda*) *Acacia*
leucophloea, (Roxb.) Willd. See
 AVS: 1, 23: 34
 white calotropis (*alarka*) *Calotropis*
procera, (Ait.) R. Br. See NK: 1, #428,
 Chopra: 46b, Chopra IDG: 305–308: 43
 white clitoria (*Xsitā*) → *śvetā*? *Clitoria*
ternatea, L. See AVS: 2, 129, NK: 1,
 #621:
 white clitoria (*giryāhvā*) → *śvetā*. *Clitoria*
ternatea, L. See AVS: 2, 129, NK: 1,
 #621:
 white clitoria (*śvetā*) → *giryāhvā*. *Clitoria*
ternatea, L. See AVS: 2, 129, NK: 1,
 #621: 98
 white cutch tree (*somavalka*) *Acacia*
polyacantha, Willd. See AVS: 1, 30, IGP
 7, GJM1: 602, AVS: 2, 935; pace NK: 1,
 #1038: 99, 120
 white dammer tree (*sarja*) *Vateria indica*,
 L. See NK: 1, #2571, AVS: 5, 349 f,
 AVS: 1, 292 f, Chopra: 253a: 34
 white siris (*kiñihī*) *Albizia procera*, (Roxb.)
 Benth. See GVDB 98, NK: 1, #93: 115
 white teak (*kāśmarī*) → *madhuparnī*.
Gmelina arborea, Roxb. See GJM1: 543,
 Trees: 51, ADPS: 240: 76, 78
 white water-lily (*kumuda*) *Nymphaea alba*,
 Linn. GVDB: 105: 25
 wild asparagus (*bahuputrā*) → *nandana*?
Asparagus racemosus, Willd. See
 further wild asparagus (*śatāvarī*): 99
 wild asparagus (*śatāvarī*) *Asparagus*
racemosus, Willd. See ADPS: 441,
 AVS: 1, 218, NK: 1, #264, IGP: 103,
 AVS: 4, 249 ff, Dymock: 3, 482 ff:
 74–76, 78, 148, 224
 wild celery (*agnika*) → may be *bhallātaka*,
lāṅgalī, *ajamodā*, *moraṭa*, or *agnimantha*,
 GVDB: 4. Uncertain: 114
 wild celery (*ajamodā*) *Apium graveolens*,
 L.: 114
 wild chinchona (*kādamba*) *Anthocephalus*
cadamba, Miq. See NK: 1, #204:
 wild mustard (*saurīyaka*) *Cleome viscosa*,
 L.? (cf. Rā.4.144). See AVS: 2, 116,
 NK: 1, #615:
 Withania (*aśvagandhā*) *Withania somnifera*
 (L.) Dunal. See AVS: 5, 409 f,
 Dymock: 2, 566 f., Chevallier 150: 43,
 71, 77
 wolfsbane (*vatsanābha*) *Aconitum*
napellus, L. See AVS: 1, 47, NK: 1, #42,
 Potter_{rev}: 4 f. Or *Aconitum*
chasmanthum Stapf ex Holmes,
 GVDB: 357: 213
 wood apple (*kapittha*) *Limonia acidissima*,
 L. See AVS: 3, 327, NK: 1, #1021: 77,
 98, 100
 woodrose (*mūṣikakarṇī*) *Jatopha curcas*, L.
 AVS: 3, 261, NK: 1, #1374. GVDB: 317;
 ADPS: 23–25 discuss this issue well:
 98, 99
 woodworm (*ghuṇa*) See note to
Atharvaveda 4.16:
 yellow-berried nightshade (*kṣudrā*)
Solanum virginianum, L. See
 ADPS: 100, NK: 1, #2329, AVS: 5, 164:
 115, 116

Glossary

√*pīḍ* (pain): 137

√*ūh* (propelled): 136

aconite (hālāhala): 110

ādarśamaṇḍala (the mirror ring): 131

ādhmāna (distension): 109

ādhmāta (swollen): 134

agada (antidote): 113

agnika (the flame): 132

ahipatāka (the snake flag): 132

air (*samīraṇa*): 136

ajagara (constrictor): 135

ajagara (the goat swallower): 132

ajeya ("invincible"): 116

akhiladehavyāptirūpam (takes the form of pervading the whole body): 111

alagarda (the hungry sting): 131

āmāsaya (stomach): 112f

ānāha (constipation): 109, 112, 116

aṅgamarda (bruising of the limbs): 112

aṅgulirāji (the finger stripe): 132

añjana (eye salve): 114

annamada (intoxication from food): 112

antidote (*agada*): 113

antra (gut): 113

apuṣpa (the grass flower): 131

arocaka (loss of appetite): 112

babhru (the brown): 132

babhrūkuṭīmukha (the brown hut mouth): 131

be exhausted (*sāda*): 113

bellyache (*jaṭhara*): 116

benumbed (*jāḍya*): 136

bindurāji (the drop stripe): 132

blockage of the vision (*dr̥ṣṭyavarodha*): 135

bodily constituents (*dhātu*): 111

bodily tissues (*dhātu*): 136

body tissue (*dhātu*): 113

bruising of the limbs (*aṅgamarda*): 112

cakraka (the ringed): 132

chest (*hṛd*): 113

chyle (*rasa*): 112

citraka (the mark): 132

constipation (*ānāha*): 109, 112, 116

constrictor (*ajagara*): 135

contamination dropsy (*duṣyodara*): 112

cow snout (*gonasa*): 133

crow's foot (*kākapada*): 114

cuñcumālaka (little ring of spots): 129

cure (*siddhi*): 114

cured (*sādhya*): 116

dadhimukha (the curd mouth): 131

darbhapuṣpa (the grass flower): 132

darita (torn): 128f

dark colour (*dhyaṃa*): 110

deadly substance (*kālakalpa*): 136

decoction (*kvātha*): 114

delirium (*moha*): 108

devadinna (the gift of god): 131

dhātu (element): 109

dhātu (bodily tissues): 136

dhātu (body tissue): 113

dhātu (element): 104, 107

dhātu (bodily constituents): 111

dhyaṃa (dark colour): 110

dīpyaka (the stimulator): 132

discharge (*praseka*): 110

disjunction (*viśleṣa*): 112

distension (*ādhmāna*): 109

doṣa (humour): 111

dr̥ṣṭyavarodha (blockage of the vision): 135

dry (*rūkṣa*): 111

ducts (*srotas*): 134

dūṣī-viṣa (slow-acting poison): 113

dūṣīviṣa (slow-acting poison): 116

dūṣīviṣāri (enemy of slow-acting poison): 116

duṣyodara (contamination dropsy): 112

dvyāhika (the two-day): 132

dvyāṅgulirāji (the two finger stripe): 132

dwindling away (*kṣaya*): 112

element (*dhātu*): 104, 107, 109

enemy of slow-acting poison
(*dūṣṭviṣāri*): 116

eṇīpada (the deer foot): 132

expansive (*vikāsin*): 111

extensive meaning of the collection of
statements (*vāksamūhārthavistāra*):
133

eye salve (*añjana*): 114

feeling of heat all over (*paridāha*): 136

gavedhuka (the gavedhuka): 131

girisarpa (the mountain snake): 131

giving of fumes (*paridhūpāyana*): 134

giving off fumes (*paridhūpana*): 134

gonasa (cow snout): 133

grahaṇī (seat of fire in the gut): 135

granthi (lumps): 109

granthi (knots): 110

great aconite (*mahāviṣa*): 110

great poison (*mahāviṣa*): 110

gruel (*yavāgū*): 114

guṇa (qualities): 111

gut (*antra*): 113

haemorrhaging (*śonitāgamana*): 134

hālāhala (aconite): 110

harṣa (horripilation): 112

hastābharanaka (the hand decoration):
132

hoarseness (*pāruṣya*): 109

horripilation (*harṣa*): 112

hot all over (*samantatastāpaḥ*): 134

hot over the whole body
(*sarvāṅgasantāpaḥ*): 134

hṛd (chest): 113

humour (*doṣa*): 111

ilikinī (the ilikinī): 132

intestines (*pakvādhāna*): 113

intestines (*pakvāśaya*): 112

intoxication from food (*annamada*): 112

jāḍya (benumbed): 136

jaṅgama (mobile): 104

jaṭhara (bellyache): 116

jyotīratha (the chariot of light): 132

kākapada (crow's foot): 114

kalā (layers of skin): 136

kālakaḥ (deadly substance): 136

kalka (mash): 116

kalpa (procedure): 127

kapha (phlegm): 109, 112f, 135

kardama (the mud): 132

kaṣāya (the ochre): 132

khaluṣa (the khaluṣa): 132

khaṇḍaphaṇa (the break hood): 131

kikkisāda (the worm eater): 132

knots (*granthi*): 110

koṣṭha (trunk of the body): 135

koṭha (skin disease): 112

kṛṣṇasarpa (the black snake): 131

kṛṣṇodara (the black belly): 131

kṣaya (dwindling away): 112

kṣīra (milky sap): 104, 107, 109

kṣīrikāpuṣpa (the milk flower): 132

kūkuṭa (the kūkuṭa): 131

kuṣṭha (pallid skin disease): 113

kvātha (decoction): 114

layers of skin (*kalā*): 136

limpid (*viśada*): 111

liṅga (symptoms): 112

little ring of spots (*cuñcumālaka*): 129

lohitākṣa (the red eye): 131f

loose stool (*vidbheda*): 109

loss of appetite (*arocaka*): 112

lumps (*granthi*): 109

madanaka (the intoxicator): 131

mahākapota (the big pigeon): 131

mahākṛṣṇa (the big black): 131

mahāpadma (the great lotus): 131

mahāpanasaka (the big jackfruit): 131

mahāsarpa (the great snake): 131

mahāśīrṣa (the big head): 131

mahāviṣa (great aconite): 110

mahāviṣa (great poison): 110

mākuli (*mākuli*): 132

mākuli (*mākuli*): 132f

mākuli (*mākuli*): 133

maṇḍala (round blotches): 112
manyāstambha (stiffness of the neck): 136
markaṭa (monkey): 110
mash (*kalka*): 116
metamorphopsia (*viparītadarśana*): 134
milky sap (*kṣīra*): 104, 107, 109
mobile (*jaṅgama*): 104
moha (delirium): 108
monkey (markaṭa): 110
mucous (*śleṣman*): 135
mūlaka (mūlaka): 110
mūlaka (*mūlaka*): 110
mustaka (mustaka): 110
mustaka (*mustaka*): 110

nasal medicine (*nasya*): 114
nasya (nasal medicine): 114
nīḥkvātha (stewed juice): 114
nirviṣa (without venom): 128
niryāsa (resin): 104, 106, 109

oil stripe (*snigdharāji*): 133
oily stripe (*snigdharāji*): 133
ophidian (*sarpita*): 128

padma (the lotus): 131
pain (*śūla*): 113
pain ($\sqrt{pīḍ}$): 137
pakvādhāna (intestines): 113
pakvāśaya (intestines): 112
pālindaka (the morning glory): 131
pallid skin disease (*kuṣṭha*): 113
panasaka (the jackfruit): 131
pārāvata (the pigeon): 132
paridāha (feeling of heat all over): 136
paridhūpana (giving off fumes): 134
paridhūpāyana (giving of fumes): 134
parisarpa (the snake around): 131
parśvabheda (ribs crack): 113
pāruṣya (hoarseness): 109
pervasive (*vyavāyin*): 111
phlegm (*kapha*): 109, 112f, 135
pilindaka (the pilindaka): 131
pith (*sāra*): 104, 106, 109
poṭa throat (*poṭagala*): 133
poṭagala (poṭa throat): 133

pralāpa (ranting): 108
praseka (discharge): 110
procedure (*kalpa*): 127
propelled ($\sqrt{ūh}$): 136
prṣata (the speckled): 131
pulse interval (*vegāntara*): 136
puṇḍarīka (*puṇḍarīka*): 110
puṇḍarīka (*puṇḍarīka*): 110
puṇḍarīka (the lotus): 132
puṇḍarīkamukha (the lotus mouth): 131
puṣpābhikīrṇnābha (the flower sprinkle beauty): 131
puṣpapāṇḍu (the pale as a flower): 131
puṣpasakalī (the flower all): 132

qualities (*guṇa*): 111

rājicitra (the stripe speckle): 132
rājimat (striped snake): 114
raktamaṇḍala (the red ring): 131
ranting (*pralāpa*): 108
rarified (*sūkṣma*): 111
rasa (chyle): 112
resin (*niryāsa*): 104, 106, 109
ribs crack (*parśvabheda*): 113
ṛjusarpa (the straight snake): 131
round blotches (*maṇḍala*): 112
rūkṣa (dry): 111

sāda (be exhausted): 113
ṣaḍaṅga (the six part): 132
sādhya (cured): 116
saindhava (salt): 114
salt (*saindhava*): 114
samantatastāpah (hot all over): 134
samīraṇa (air): 136
śaṅkhaṇḍa (the conch keeper): 131
sāra (pith): 104, 106, 109
sarpita (ophidian): 128
sarpita (serpented): 128
sārṣapa (*sārṣapa*): 109
sārṣapa (*sārṣapa*): 109
sarvakṛṣṇa (the all black): 131
sarvāṅgasantāpah (hot over the whole body): 134
seat of fire in the gut (*grahāṇī*): 135

- serpented (*sarpita*): 128
siddhi (cure): 114
 side-effects (*upadrava*): 116
śīśuka (the kid): 131
 skin disease (*koṭha*): 112
 sleep (*svāpa*): 109
śleṣman (mucous): 135
 slow-acting poison (*dūṣṭviṣa*): 116
 slow-acting poison (*dūṣṭi-viṣa*): 113
snigdharāji (oily stripe): 133
snigdharāji (oil stripe): 133
śonitāgamana (haemorrhaging): 134
srotas (ducts): 134
srotas (tubes): 135
 stationary (*sthāvara*): 104
 stewed juice (*niḥkvātha*): 114
sthāvara (stationary): 104
 stiffness of the neck (*manyāstambha*): 136
 stomach (*āmāśaya*): 112f
 striped snake (*rājimat*): 114
 successive shocks (*vega*): 127
śukapatra (the white leaf): 132
sūkṣma (rarified): 111
śūla (pain): 113
svāpa (sleep): 109
śvāsa (wheezing): 109
śvetadara (the white rip): 131
svetahanu (the white jaw): 132
śvetakapota (the white pigeon): 131
śvetamaṇḍala (the white ring): 131
 swollen (*ādhmāta*): 134
 symptoms (*liṅga*): 112
 takes the form of pervading the whole
 body (*akhiladehavyāptirūpam*): 111
tantuka (the stretch): 131
tatra (the tatra): 132
 the all black (*sarvakṛṣṇa*): 131
 the bamboo leaf (*veṇupatraka*): 131
 the big black (*mahākṛṣṇa*): 131
 the big cow snout (*vṛddhagonasa*): 131
 the big head (*mahāśīrṣa*): 131
 the big jackfruit (*mahāpanasaka*): 131
 the big pigeon (*mahākāpota*): 131
 the black belly (*kṛṣṇodara*): 131
 the black snake (*kṛṣṇasarpa*): 131
 the break hood (*khaṇḍaphaṇa*): 131
 the brown (*babhru*): 132
 the brown hut mouth
 (*babhrūkuṭīmukha*): 131
 the chariot of light (*jyotīratha*): 132
 the conch keeper (*śaṅkhapāla*): 131
 the curd mouth (*dadhimukha*): 131
 the deer foot (*eṇipada*): 132
 the drop stripe (*bindurāji*): 132
 the finger stripe (*aṅgulirāji*): 132
 the flame (*agnika*): 132
 the flower all (*puṣpasakalī*): 132
 the flower sprinkle beauty
 (*puṣpābhikīrṇnābha*): 131
 the gavedhuka (*gavedhuka*): 131
 the gift of god (*devadinna*): 131
 the goat swallower (*ajāgara*): 132
 the grass drier (*trṇaśoṣaka*): 132
 the grass flower (*apuṣpa*): 131
 the grass flower (*darbhapuṣpa*): 132
 the great lotus (*mahāpadma*): 131
 the great snake (*mahāsarpa*): 131
 the hand decoration (*hastābharaṇaka*):
 132
 the hungry sting (*alagarda*): 131
 the ilikinī (*ilikinī*): 132
 the intoxicator (*madanaka*): 131
 the jackfruit (*panasaka*): 131
 the khaluṣa (*khaluṣa*): 132
 the kid (*śīśuka*): 131
 the kūkuṭa (*kūkuṭa*): 131
 the little tree (*vṛkṣaka*): 132
 the lotus (*puṇḍarīka*): 132
 the lotus (*padma*): 131
 the lotus mouth (*puṇḍarīkamukha*): 131
 the mark (*citraka*): 132
 the milk flower (*kṣīrikāpuṣpa*): 132
 the mirror ring (*ādarśamaṇḍala*): 131
 the morning glory (*pālindaka*): 131
 the mountain snake (*girisarpa*): 131
 the mud (*kardama*): 132
 the ochre (*kaṣāya*): 132
 the pale as a flower (*puṣpapāṇḍu*): 131
 the pigeon (*pārāvata*): 132
 the pilindaka (*pilindaka*): 131

the rain cloud (*valāhako*): 131f
 the red eye (*lohitākṣa*): 131f
 the red ring (*raktamaṇḍala*): 131
 the ringed (*cakraka*): 132
 the six part (*ṣaḍaṅga*): 132
 the snake around (*parisarpa*): 131
 the speckled (*prṣata*): 131
 the stimulator (*dīpyaka*): 132
 the straight snake (*rjusarpa*): 131
 the stretch (*tantuka*): 131
 the stripe speckle (*rājicitra*): 132
 the tatra (*tatra*): 132
 the two finger stripe (*dvyāṅgulirāji*): 132
 the two-day (*dvyāhika*): 132
 the variegated (*vicitra*): 131
 the white jaw (*svetahanu*): 132
 the white leaf (*śukapatra*): 132
 the white pigeon (*śvetakapota*): 131
 the white ring (*śvetamaṇḍala*): 131
 the white rip (*śvetadara*): 131
 the worm eater (*kikkisāda*): 132
 the year-snake (*varṣāhika*): 132
 the snake flag (*ahipatāka*): 132
 torn (*darita*): 128f
 toxic pulse (*vega*): 136f
 toxic pulses (*viṣavega*): 135
 treatable (*yāpya*): 116
tṛṇaśoṣaka (the grass drier): 132
 trunk of the body (*koṣṭha*): 135
 tubes (*srotas*): 135

udveṣṭana (writhing): 108
upadrava (side-effects): 116

vāksamūhārthavistāra (extensive meaning
 of the collection of statements): 133
valāhako (the rain cloud): 131f
varṣāhika (the year-snake): 132
vega (toxic pulse): 136f
vega (successive shocks): 127
vega (toxic pulse): 137
vegāntara (pulse interval): 136
veṇupatraka (the bamboo leaf): 131
vicitra (the variegated): 131
viḍbheda (loose stool): 109
vikāsin (expansive): 111
viparītadarśana (metamorphopsia): 134
viśada (limpid): 111
viṣavega (toxic pulses): 135
viśleṣa (disjunction): 112
vṛddhagonasa (the big cow snout): 131
vṛkṣaka (the little tree): 132
vyāna (vyāna breath): 135
vyāna breath (*vyāna*): 135
vyavāyin (pervasive): 111

wheezing (*śvāsa*): 109
 without venom (*nirviṣa*): 128
writhing (*udveṣṭana*): 108

yāpya (treatable): 116
yavāgū (gruel): 114
 “invincible” (*ajeya*): 116

Todo list

■ Can't be "sedation"	35
■ JG in the light of your reflections, I removed "women's fertile". I've put śārīram back in.	61
■ JG could you provide a standard citation reference for this information?	61
■ I have replaced the plant-names with entries from my plant database.	63
■ This is a change we should make in the edition.	67
■ You need not give all the grammatical details about śrotādi. Assume you are talking to knowledgeable Sanskrit scholars.	68
■ Perhaps <i>kalka</i> here could also mean the <i>Terminalia Bellerica</i> (विभीतक).	70
■ Euphorbia Antiquorum (Antique spurge)	72
■ The webpage https://hindi.shabd.in/vairagya-shatakam-bhagacharya-arjun-tiwari/post/117629 says that this verse belongs to the <i>Nītiratna</i> . I could not find this text.	75
■ The provisional edition should be modified accordingly.	77
■ There, Ḍalhaṇa comments that deliberation on <i>avapīḍa</i> had been done earlier when it was mentioned. Find that description to know more details.	79
■ Search for the section where the treatment of <i>ākṣepaka</i> is described.	80
■ Make the first letter of sentence capital.	80
■ ?	86
■ ?	86
■ ?	86
■ (?)	86
■ Cf. Arthaśāstra 1.21.8.	94
■ I'm still unhappy about this verse.	97

■ Mention this in the introduction as an example of the scribe knowing the vulgate.	97
■ fn about sadyas+	97
■ Bear's bile instead of deer's bile.	98
■ punarṇavā in the N & K MSS	99
■ śrita for śṛta	99
■ explain more	100
■ Medical difference from Sharma.	100
■ example where the vulgate clarifies that these should be used separately; appears to be a gloss inserted into the vulgate text. . . .	100
■ The two uses of prāpta are hard to translate. prāptāḥ → kṣipram is an example of the vulgate banalizing the Sanskrit text to make sense of a difficult passage.	100
■ √ vyadh not √ vedh (also elsewhere and for the ears), causative optative.	100
■ -> ativiṣa	110
■ Look up the ca. reference.	110
■ Come back to the issue of "kalpa". Look up passages in the Kośa. . . .	117
■ write footnote: don't repeat ativiṣā; vulgate similar to H.	121
■ material corresponds to SS.1.45.205ab, where it describes how alcohol affects the body.	123
■ Or "There are 20 phaṇins and 6 maṇḍalins. The same number are known. There are 13 Rājīmats." Or even, "there are 20 Phaṇins and six of them are Maṇḍalins." Are phaṇins really the same as darvīkaras?	127
■ grammar	129
■ ri- ṛ-?	131
■ varṇa means "colour" elsewhere?	132
■ kalā doctrine; see SS śārīra 4.4	136
■ check in epic sanskrit	137
■ clear up AS reading	137
■ where is cutting with a knife related to removing bile or phlegm. . . .	142
■ maṣī burned charcoal. Find refs.	142
■ find ref.	147
■ Check out these refs.	148
■ meaning of kalpa	148
■ or a dual?	153
■ Footnote here about who is speaking to whom.	143

■ a kind of asthma?	149
■ Not happy with the last part.	149
■ connecting with the previous pāda?	149
■ (atyartha? excessive?)	150
■ for...dvādaśādikaḥ)? not clear to me, is it dvādaśādhikaḥ?	150
■ (any better medical terms for them?)	150
■ (since the word lagha is not clear to me)	151
■ (Not too happy with it.)	151
■ (not sure about it)	151
■ (Not in vulgate)	151
■ (I am looking for a better translation)	151
■ (I'd need to rework on it).	152
■ (I'd need to rework on it and think about the sequencing of the number).	152
■ (āmadoṣa? Not too sure)	152
■ (2nd hemistich is incomplete)	152
■ (not too sure about the meaning of vyapada)	152
■ not so sure about sodāvarte	152
■ not so sure about it, MW mentions others like Cordia Myxa and Alangium hexapetalum	153
■ not sure about it	153
■ (sāmāhāya- any better word?)	153
■ Not so happy with this translation	154
■ (Not happy with it)	155
■ (the second hemistich is incomplete)	155
■ can śṛta mean here boiled milk? Not happy with the last part . . .	155
■ the rest of the text is unclear to me	155
■ (not so sure about it). [ghṛtābhyaṅgonavasthāsu should it be like ghṛtābhyaṅgo 'navasthāsu?, svedā lepaḥ ghṛtābhyaṅgonavas- thāsu ca yojayet] (Not so happy with the translation)	156
■ See also Ḍalhaṇa at 1.1.1 (Su 1938: 1)	165
■ See chapter 40 of Sūtrasthāna.	167
■ vasā / medas / majjan	167
■ Does bhūtādi a compound or it means ahaṅkāra or ego?	167

