A Translation of the Nepalese Text of the Suśrutasaṃhitā

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> Draft of 5th October 2024 © The Authors

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Part 5. Kalpasthāna

Kalpasthāna 6: Rats and Rabies

Introduction

A notable macro-difference between the vulgate and the Nepalese versions of the $Su\acute{s}rutasanhit\bar{a}$ is that this chapter and the next are reversed in the vulgate. In the Nepalese version, this is chapter six and the chapter on antitoxic drumming is chapter seven.⁵⁶¹

Mouse or Rat?

In 2004, Umberto Eco published a characteristically subtle and enlightening book about translation entitled *Mouse or Rat?*. The title alluded to Eco's discussion of the example of translating words for mice and rats across several European languages that do not always distinguish these animals from each other, or confuse them in other ways. In Sanskrit too, $m\bar{u}$, the subject and title of this chapter, does not distinguish between mouse and rat. The same is true for MIA and NIA derivatives. It is hard to know quite how to translate the term since "rodent" is too broad a term. In what follows, I have chosen "rat" for $m\bar{u}$, i in order to produce a working translation of a text about an animal that is viewed as toxic and threatening. "Mouse" does not have quite these connotations for a contemporary English speaker. i

The rodents that may be described as mice or rats in contemporary South Asia and that are especially associated with the spread of disease

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561 See p. 117 above.
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⁵⁶² Eco 2004.

⁵⁶³ CDIAL: #10258.

⁵⁶⁴ Kunjalal Bhishagratna made the same choice (Kunjalal Bhishagratna 1907–16: 2, 728–736).

include the house or black rat (*Rattus rattus*, L.), the brown rat (*R. norve-gicus*, Berkenhout), the house mouse (*Mus musculus*, L.) and bandicoots (*Bandicota*).⁵⁶⁵ Also present in SA are the Indian desert gerbille (*Meriones hurrianae*, Jerdon), the Indian gerbille (*Tatera indica*, Hardwicke), the spiny field mouse (*Mus platythrix*, Bennett), the Indian field mouse (*M. booduga*, Gray), the Metad (*Millardia meltada*, Gray), the Indian bush rat (*Golunda ellioti*, Gray), the longtailed tree mouse (*Vandeleuria oleracea*, Bennett), Royle's vole (*Aticola roylei*, Gray), the Indian mole-rat (*Bandicota bengalensis*, Gray & Hardwicke), ⁵⁶⁶ the bandicoot rat (*B. indica*, Bechstein), the shorttailed bandicoot (*Nesokia indica*, Gray & Hardwicke), the whitetailed wood rat (*Madromys blanfordi*, Thomas), the bay bamboo rat (*Cannomys badius*, Hodgson), and other similar rodents.⁵⁶⁷ However, plausibly matching these creatures to the Sanskrit names listed in this chapter is hard to impossible.⁵⁶⁸

Literature

A brief survey of this chapter's contents and reference to the limited existing research on it to 2002 was provided by Meulenbeld.⁵⁶⁹

A rich description of Indian rodents is available in BIA: ch. 13, esp. 205–215, including several useful illustration. Unfortunately, Prater rarely gave Indian-language names.

Translation

1 Now I shall explain the procedure (*kalpa*) relating to rats (*mūṣikā*).⁵⁷⁰

⁵⁶⁵ BIA: 194.

^{566 &}quot;Recent studies...show that the mole-rat forms 98% of the total rodent population of Calcutta," BIA: 206.

⁵⁶⁷ BIA: ill. plates 45, 46 et passim.

⁵⁶⁸ Mouse-words that we do not see in this chapter include the *kirika*, *giri*, *girikā* group (EWA: 1, 353, 488, 566).

⁵⁶⁹ HIML: IA, 295–296. In addition to the translations mentioned by Meulenbeld (HIML: IB, 314–315), a translation of this chapter was included in Sharma 1999–2001: 3, 67–77. Sekhar Namburi (2023) omitted mention of this type of poisoning, although he discussed rabies, a subsection of this chapter.

⁵⁷⁰ The word मूषिका does not distinguish between rats and mice. See Introduction above.

Translation 181

3 Learn concisely about aforementioned eighteen kinds of rats that have poison in their semen, according to their names, characteristics and the herbal treatments.⁵⁷¹

- 4–6 They are traditionally called,⁵⁷²
 - 1. Fondling rat,
 - 2. Sonny rat,
 - 3. Black rat,
 - 4. Gajpipul rat,
 - 5. Little rat,
 - 6. House shrew
 - 7. Rala rat,
 - 8. Red-toothed shrew,
 - 9. Bad-marked rat,
 - 10. Invincible rati,
 - 11. Fidgety rat,
 - 12. Brown rat,
 - 13. the one called Mole-rat and
 - 14. Tawny rat,
 - 15. the large black Rat,
 - 16. White rat, together with the
 - 17. the large Brown rat,
 - 18. and the Pigeon-like rat.⁵⁷³
 - 7 If a part of the body has their sperm fall on it or if they touch it with their nails or teeth, etc., that have been touched by sperm, then the blood is corrupted.⁵⁷⁴

⁵⁷¹ Rats with poisonous semen were mentioned in 5.3.5 (Su 1938: 5.6.7) (see p. 144 above).

⁵⁷² Dalhaṇa on 5.6.4 (Su 1938: 582) gave no comment on any of these names. The identifications are mostly guesswork and sometimes whimsical. The glossary gives lexical discussion of individual names.

⁵⁷³ The Nepalese list has विसर (Gajpipul rat) for the vulgate's हंसिर. The terms आखु, मूषिका and उन्द्ररु are here used as generic names of rat/mouse rodents.

⁵⁷⁴ Palhaṇa on 5.7.7 (Su 1938: 582) quoted an authority called Ālambāyana who elaborated on this subject (see HIML: IA, 658 for references to this author of a lost treatise on toxicology). Palhaṇa also cited Ālambāyana elsewhere on the topics of insects and spiders (HIML: IB, 722, note 5). Book 22, tale 543 of the Jātakas includes mention of an Ālambāyana who claimed to be a doctor and specialist in snakebite poisons: nāhaṇ dijādhipo homi, na diṭṭho garuļo mayā, āsīvisena vitto ti vejjo maṇ brāhmaṇaṇ vidū

ti 793 (Fausbøll 1877–96: 6, 181, tr. Cowell et al. 1895–1907: 6, 95). There is a herbal "Ālambāyana mantra" given to an ascetic by a Garuḍa who has just caught and eaten a Nāga, thus invoking the Garuḍa-snake-poison motif (Cowell et al. 1895–1907: 6, 93–94). The Jātakas were translated into Chinese in the third century ce.

Pāli text: Fausbøll 1877–96: 6, 177 ff.

⁽Cowell et al. 1895–1907: 6, 93–94, 95–98, 99)

See further discussion by Slouber (2016: 33–34), who calls the mantra "Alampāyana," adopting the reading of the Burmese MS Bd against the Fausbøll's critical reading "Ālambāyana" (see Fausbøll 1877–96: 2 & 3, Preliminary remarks 3 and 7).



Editions and Abbreviations

- Ca 1941 Ācārya, Yādavaśarma Trivikrama (1941) (ed.), महर्षिणा पुन-र्वसुनोपदिष्टा, तच्छिष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तविरचितया आयुर्वेददीपिकाव्याख्यया संव-लिता (3rd edn., Mumbayyāṃ: Nirnaya Sagara Press), ark:/ 13960/t48q2f20n.
- CDIAL Turner, R. L. (1966–85), A Comparative Dictionary of the Indo-Aryan Languages (London, New York, Toronto: Oxford University Press), ISBN: 0197135501, URL; v. 2: Indexes by D. R. Turner (OUP, London, 1969), v. 3: Phonetic Analysis by R. L. and D. R. Turner (OUP, London, 1971), v. 4: Addenda and Corrigenda ed. J. C. Wright (SOAS, London, 1985). Online database at http://dsal.uchicago.edu/dictionaries/soas/.
- DED₂ Burrow, Thomas, and Emeneau, Murray B. (1984), *A Dravidian Etymological Dictionary* (2nd edn., Oxford: Clarendon Press), ark:/13960/s24rgc5rsz0, url.
- EWA Mayrhofer, Manfred (1986–2001), Etymologisches Wörterbuch des Altindoarischen (Heidelberg: Carl Winter, Universitätsverlag), ISBN: 3-533-03826-2.
- HIML Meulenbeld, Gerrit Jan (1999–2002), A History of Indian Medical Literature, 5 vols. (Groningen: E. Forsten), ISBN: 9069801248.
- KEWA Mayrhofer, Manfred (1953–72), Kurzgefaßtes etymologisches Wörterbuch des Altindoarischen; a Concise Etymological Sanskrit Dictionary (Heidelberg: Carl Winter, Universitätsverlag).

Mahākośa

Jośī, Veṇīmādhavaśāstrī, and Jośī, Nārāyaṇa Harī (1968), आयुर्वेदीय महाकोशः अर्थात् आयुर्वेदीय शब्दकोशः संस्कृत-संस्कृत (Muṃbaī: Mahārāṣṭra Rājya Sāhityta āṇi Saṃskṛti Maṃḍaḷa), ark:/13960/t22c41g8t.

MW

Monier-Williams, Monier, Leumann, E., Cappeller, C., et al. (1899), *A Sanskrit–English Dictionary Etymologically and Philologically Arranged, New Edition* (Oxford: Clarendon Press); 1970 reprint.

PWK

Böhtlingk, Otto (1879), Sanskrit-wörterbuch in kürzerer fassung (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), URL, accessed 18/05/2023.

Śabdasindhu

Gupta, Umeśachandra, and Sena, Nagendra Nātha (1983), वैद्यक-शब्दसिन्धुः = Vaidyaka-Śabdasindhuḥ (3rd edn., Varanasi & Delhi: Chaukhambha Orientalia); 3rd ed. first published in 1914.

Su 1938

Ācārya, Yādavaśarma Trivikrama, and Ācārya, Nārāyaṇa Rāma (1938) (eds.), श्रीडल्हणाचार्यविरचितया निबन्धसंग्रहा-ख्यव्याख्यया निदानस्थानस्य श्रीगयदासाचार्यविरचितया न्यायचन्द्रि-काख्यपञ्जिकाव्याख्यया च समुल्लसिता महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता (3rd edn., Bombay: Nirṇayasāgara Press), ark:/13960/t09x0sk1h; HIML:IB, 313, edition cc ('the vulgate').

Index of Manuscripts

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Bibliography

- Ācārya, Yādavaśarma Trivikrama (1941) (ed.), महर्षिणा पुनर्वसुनोपदिष्टा, तच्छि-ष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तवि-रचितया आयुर्वेददीपिकाव्याख्यया संवलिता (3rd edn., Mumbayyāṃ: Nirnaya Sagara Press), ark:/13960/t48q2f20n.
- Böhtlingk, Otto (1879), Sanskrit-wörterbuch in kürzerer fassung (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), url, accessed 18/05/2023.
- Burrow, Thomas (1948), "Dravidian Studies VII," Bulletin of the School of Oriental and African Studies (London), 12/2: 365–96, URL.
- Byrski, Maria Christopher (1981), "Is there a Sanskrit Word for Pumice," *Indologica Taurinensia*, 8–9, URL.
- Cowell, E. B., et al. (1895–1907), *The Jātaka or Stories of the Buddha's Former Births, Translated from the Pāli by Various Hands*, ed. E. B. Cowell (Cambridge: Cambridge University Press); v. 1 ark:/13960/t5j969876; v. 2 ark:/13960/toms3vr71; v. 3 ark:/13960/t7mp55t98; v. 4 ark:/13960/t2p61wr9z; v. 5; v. 6 (1907) ark:/13960/tojt8933k.
- Deuti, Kaushik (2020), *Skinks of India*, ed. Sujoy Raha and Probath Bag (Kolkata: Zoological Survey of India), ISBN: 9788181715517.
- Diedrich, Veronica, Zweerink, Kara, and Elder, Brandon (2024), "Plant Dermatitis," *Emergency Medicine Clinics of North America*, 42/3: 613–38, ISSN: 0733-8627. DOI: 10.1016/j.emc.2024.03.001.
- Eco, Umberto (2004), Mouse or Rat? Translation As Negotiation (London: Orion), ISBN: 9780297830016.
- Edgeworth, M. Pakenham (1851), "Descriptions of Some Unpublished Species of Plants from North-Western India," *Transactions of the Linnean Society of London*, 20: 23–92, ark:/13960/t9x060p3b.

268 Bibliography

Fausbøll, Viggo (1877–96), *The Jātaka. Together with Its Commentary. Being Tales of the Anterior Births of Gotama Buddha*, 7 vols. (London: Trübner); V.7 is indexes by Dines Andersen.

- Froese, R., and Pauly, D. (2022) (eds.), "Fishbase: The Global Encyclopedia about Fish," URL.
- Gupta, Śyāmacaraṇa (1887), আয়ুর্বেদার্থ চন্দ্রিকা [= Āyurvedārtha candrikā] (Calcutta), ark:/13960/t5w71k903.
- Hellwig, Oliver (2009), Wörterbuch Der Mittelalterlichen Indischen Alchemie (Groningen: Barkhuis & University of Groningen, University Library), ISBN: 9789077922620. DOI: 10.2307/j.ctt22728hs, URL, accessed 19/06/2020.
- Khan, Zihan Rahman, et al. (2018), "Medicinal Values of Aquatic Plant Genus Nymphoides Grown in Asia: A Review," *Asian Pacific Journal of Tropical Biomedicine*, 8/2: 113–9, ISSN: 2221-1691. DOI: 10.4103/2221-1691.225615.
- Kunjalal Bhishagratna, Kaviraj (1907–16), *An English Translation of the Sushruta Samhita Based on Original Sanskrit Text*, 3 vols. (1st edn., Calcutta: The Author), URL, accessed 18/02/2021.
- Lienhard, Siegfried (1978), "On the Meaning and Use of the Word Indragopa," *Indologica taurinensia*, 6: 177–88, URL, accessed 06/02/2021; The indragopa is a 'red velvet mite'.
- McHugh, James (2012), "The Disputed Civets and the Complexion of the God: Secretions and History in India," *Journal of the American Oriental Society*, 132/2: 245, ISSN: 0003-0279. DOI: 10.7817/jameroriesoci.132.2.0245.
- ——(2013), "Blattes de Byzance in India: Mollusk Opercula and the History of Perfumery," *Journal of the Royal Asiatic Society of Great Britain & Ireland*, 23/1: 53–67, ISSN: 2051-2066. DOI: 10.1017/s1356186312000727.
- ——(2021), An Unholy Brew: Alcohol in Indian History and Religions (New York: Oxford University Press), 416 pp., ISBN: 9780199375936.
- Meulenbeld, Gerrit Jan (1974b), *The Mādhavanidāna and Its Chief Commentary: Chapters 1–10. Introduction, Translation, and Notes* (Leiden: Brill), ISBN: 978-90-04-03892-9, ark:/13960/t25b8q97g.

Bibliography 269

Poudel, Ram C., et al. (2013), "Yews (Taxus) along the Hindu Kush-Himalayan Region: Exploring the Ethnopharmacological Relevance among Communities of Mongol and Caucasian Origins," *Journal of Ethnopharmacology*, 147/1: 190–203, ISSN: 0378-8741. DOI: 10.1016/j.jep.2013.02.031.

- Saraswat, K. S. (1991), "Archaeobotanical Remains in Ancient Cultural and Socio-Economical Dynamics of the Indian Subcontinent," *Palaeobotanist*, 40: 514–45. DOI: 10.54991/jop.1991.1797.
- Sekhar Namburi, U. R. (2023), *A Text Book of Agada Tantra (Illustrated)* (repr. Varanas: Chaukhambha Sanskrit Sansthan).
- Sharma, Priya Vrat (1982), *Dalhaṇa and his Comments on Drugs* (Delhi: Munshiram Manoharlal).
- —— (1999–2001), Suśruta-Saṃhitā, with English Translation of Text and Dalhaṇa's Commentary Alongwith (sic) Critical Notes, 3 vols. (Haridas Ayurveda Series, 9; Varanasi: Chaukhambha Visvabharati).
- Siromaṇi, Bharatacandra (1873) (ed.), चतुर्वर्गचिन्तामणि-दानखण्डम् (Calcutta: Asiatic Society of Bengal), ark:/13960/t1rf9jd94.
- Slouber, Michael (2016), Early Tantric Medicine: Snakebite, Mantras, and Healing in the Garuda Tantras (New York: OUP), 392 pp., ISBN: 9780190461812.
- Suvedī, K. S., and Tīvārī, N. (2000) (eds.), सौश्रुतनिघण्टुः: ग्रन्थादौ विस्तृतेन ग्रन्थ-वैशिष्ट्यप्रकाशकेनोपोद्धातेन अवसाने च द्रव्याणामनेकभाषानामावली-पर्यायसङ्ग्रहाभ्यां समलङ्कृतः सुश्रुतसंहितायां प्रयुक्तानामौषधद्रव्याणां पर्याय-गुणकर्मवर्णात्मको ऽपूर्वग्रन्थः (Belajhundī, Dāṅ: Mahendrasamskrtaviśvavidyālayah).
- Talwar, P. K., and Kacker, R. K. (1984), *Commercial Sea Fishes of India* (Calcutt: Zoological Survey of India), ark:/13960/t5s841v5m.
- Varshney, R. K. (2000), "First Authentic Record of the Lac Insect from Gujarat," *Bionotes*, 2/2: 27, URL, accessed 24/09/2024.
- Wujastyk, Dominik (2003), "Black Plum Island," in 2nd International Conference on Indian Studies. Proceedings (Kraków: Jagiellonian University, Institute of Oriental Philology and Księgarnia Akademicka), 637–49.

270 Bibliography

Materia Medica

Abbreviations

ADPS	Sivarajan, V. V., and Balachandran, Indira (1994), Ayurvedic
	<i>Drugs and Their Plant Sources</i> (New Delhi, Bombay, Calcutta:

Oxford & IBH Publishing).

AVS Warrier, P. K., Nambiar, V. P. K., and Ramankutty, C.

(1994–96) (eds.), Indian Medicinal Plants: A Compendium of 500 Species. Vaidyaratnam P. S. Varier's Arya Vaidya Sala,

Kottakal (Madras: Orient Longman).

BIA Prater, S. H. (1993), The Book of Indian Animals (3rd edn.,

Bombay, Delhi, etc.: Oxford University Press), ark:/13960/t6356w32f; 4th impression of 3rd corrected 1980 edition.

Chevillard Chevallier, Andrew (2000), The Encyclopedia of Herbal

Medicine, ed. Penny Warren et al. (1st edn., New York: Dorling Kindersley), ISBN: 9780751303148, ark:/13960/

s2bh76qc88s.

Chopra, R. N., Nayar, S. L., and Chopra, I. C. (1956), Gloss-

ary of Indian Medicinal Plants (3rd reprint, 1992, New Delhi: Council of Scientific and Industrial Research); vol. 2: R. N.

Chopra, I. C. Chopra, and Varma (Chopra_{sup}).

Chopra IDG Chopra, R. N., Chopra, I. C., Handa, K. L., et al. (1958),

Chopra's Indigenous Drugs of India (2nd edn., Calcutta: Dhur

& Sons), ark:/13960/t9673t140.

272 Abbreviations

Chopra, R. N., Chopra, I. C., and Varma, B. S. (1969), *Supplement to Glossary of Indian Medicinal Plants* (Reprint 1986, New Delhi: National Institute of Science Communication), ISBN: 8185038872.

Dutt, Uday Chand (1922), The Materia Medica of the Hindus...with a Glossary of Indian Plants by George King. Revised Edition...by Binod Lall Sen and Ashutosh Sen and Pulin Krishna Sen (Krishnadas Sanskrit Studies; 3rd edn., Calcutta: Madan Gopal Dass for the Adi-Ayurveda Machine Press), ark:/13960/t59c7tg9z; Reprinted Varanasi: Chowkhamba Saraswatibhavan, 1980.

Dymock, William, Warden, C. J. H., and Hooper, David (1890), *Pharmacographia Indica: A History of the Principal Drugs of Vegetable Origin Met with in British India* (London, Bombay, Calcutta: Kegan Paul), URL, accessed 16/03/2023.

Meulenbeld, Gerrit Jan (1974*a*), "Sanskrit Names of Plants and their Botanical Equivalents," in id., *The Mādhavanidāna and Its Chief Commentary: Chapters 1–10. Introduction, Translation, and Notes* (Leiden: Brill), chap. Appendix Four, 520–611, ark:/13960/t25b8q97g.

Meulenbeld, Gerrit Jan (1988), "G. J. Meulenbeld's Additions to his "Sanskrit Names of Plants and their Botanical Equivalents"," in Rahul Peter Das, Das Wissen von der Lebensspanne der Bäume: Surapālas Vṛkṣāyurveda (Stuttgart: Franz Steiner Verlag), chap. Appendix 1, 425–65, ISBN: 9783515046633; Supplement to GJM1.

Singh, Thakur Balwant, and Chunekar, K. C. (1972), *Glossary of Vegetable Drugs in Brhattrayī* (Varanasi: Chowkhamba Sanskrit Series Office), ark:/13960/s2cvp72x58j.

Hilgenberg, Luise, and Kirfel, Willibald (1941), Vāgbhaṭa's Aṣṭāṅgahṛdayasaṃhitā, ein altindisches Lehrbuch der Heilkunde, aus dem Sanskrit ins Deutsche übertragen mit Einleitung, Anmerkungen und Indices (Leiden: Brill), ark:/13960/t52h05616.

Dutt

Dymock

GJM₁

GJM₂

GVDB

HK

Abbreviations 273

IGP Griffiths, Mark (1994), The New Royal Horticultural Society Index of Garden Plants (London: Macmillan), ark:/13960/t2q61gn9z.

Issar, T. P. (1994), *Blossoms of Bangalore* (Bangalore: T. P. Issar).

IW Israel, Samuel, et al. (1988), *Indian Wildlife: Sri Lanka Nepal* (Insight Guides; Singapore etc.: APA Publications), ISBN: 9780245545238, ark:/13960/s2p9d5pqd1w.

K & B Kirtikar, K. R., Basu, B. D., and an I.C.S (1987), *Indian Medicinal Plants*, ed. E. Blatter, J. F. Caius, and K. S. Mhaskar, 8 vols. (2nd edn., Dehradun: International Book Distributors); First published in Allahabad, 1918.

MBG Missouri Botanical Garden (2024), "Missouri Botanical Garden: Plant Finder," Missouri Botanical Garden, url.

NEH Bown, Deni (2001), *New Encyclopedia of Herbs and Their Uses* (2nd edn., London, New York etc: .Dorling Kindersly).

NK Nadkarni, K. M. (1982), *Dr. K. M. Nadkarni's Indian Materia Medica, with Ayurvedic, Unani-tibbi, Siddha, Allopathic, Homeopathic, Naturopathic & Home Remedies, Appendices & Indexes ... in Two Volumes,* ed. A. K. Nadkarni, 2 vols. (3 ed., revised and enlarged by A. K. Nadkarni, Bombay: Popular Prakashan), ISBN: 8171541429, URL; First published in 1954.

Peter Peter, K. V. (2012) (ed.), *Handbook of Herbs and Spices* (Food Science, Technology and Nutrition, 228; 2nd edn., Oxford, Cambridge, Philadelphaia, New Delhi: Woodhead Publishing), ISBN: 9780857090393.

Potter_{rev} Wren, R. C., Williamson, Elizabeth M., and Evans, Fred J. (1994), *Potter's New Cyclopaedia of Botanical Drugs and Preparations* (Saffron Walden: C. W. Daniel Company Ltd.); Reprint of revised 1988 edition.

POWO Kew Gardens (2024), "Plants of the World," Royal Botanic Gardens, URL.

Reptiles Daniel, J. C. (1983), *The Book of Indian Reptiles* (Bombay: Oxford University Press).

Trees Bole, P. V., and Vaghani, Yogini (1986), Field Guide to the

Common Trees of India (Bombay, Delhi, Oxford, etc.: World Wildlife Fund – India and Oxford University Press), ISBN:

0-19-561595-6; 4th reprint.

Watt, George (1908), The Commercial Products of India, Being

an Abridgement of "the Dictionary of the Economic Products of India" (London: John Murray), ark:/13960/t8cg7dm79.

Flora

aconite leaf (?) (*viṣapatrikā*) Unknown. Cf. perhaps, *vatsanābha* (wolfsbane). Cf. GVDB: 373: 133

agarwood (*aguru*) Aquilaria malaccensis Lam., GVDB: 3: 94, 95, 185

'alas, alas' (?) (hālāhala) unknown. See Cf. Soḍhalanighantu p.43 (sub bola) = stomaka = vatsanābha: 135

Alexandrian laurel (*punnāga*) Calophyllum inophyllum, L. See AVS: 1, 338, NK: 1, #425: 175, 186

amaranth (taṇḍulīya) see amaranth (taṇḍulīyaka): 177

amaranth (taṇḍulīyaka) Amaranthus spinosus L. See GVDB: 174, Dutt: 321, NK: 1, #144, Potter_{rev}: 15. Cf. AVS: 1, 121. Amaranth (etym. amṛta!) is a large family, many originally endemic to S. America. A. hypochondriacus L. is sometimes identified with taṇḍulīyaka, but A. spinosus L. is better known and attested in the first millennium BCE (Saraswat 1991): 127, 184, 274

Arabian jasmin (*tṛṇaśūnya*) see Arabian jasmine (*mallikā*), GVDB: 190 MW: 453 says Jasminium sambac. GVDB: 190 also suggest screwpine (*ketaka*): 274

Arabian jasmine (*mallikā*) Jasminum sambac (L.) Aiton, GVDB: 300: 274

Arabian jasmine (*tṛṇaśūlya*) probably an alternative pronunciation for Arabian

jasmin (*tṛṇaśūnya*), GVDB: 190 : 186 arjun (*arjuna*) Terminalia arjuna, Bedd. See HK: 738 : 40, 74, 183

Asoka tree (*aśoka*) Saraca indica Linn., GVDB: 26: 95, 97, 176, 186, 196, 288

atis root (*śṛṅgīviṣa*) Aconitum heterophyllum, Wall. ex Royle. See AVS: 1, 42, NK: 1, #39:134

axlewood (*dhava*) Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill & Perr. See AVS: 1, 163 f, Chopra: 20: 40, 73, 145, 183, 186

bamboo leaves (*veṇupatrikā*) Bambusa bambos, Druce. See NK: 1, #307: 127 banyan (*vaṭa*) Ficus benghalensis Linn., GVDB: 356: 74, 77, 78

barley (*yava*) Hordeum vulgare, L. See HK: 752: 105

bayberry (*kaṭphala*) M. esculenta
Buch.-Ham. ex D.Don, which is is
native to the Himalaya, from Kashmir
to Assam, as well as S. China and SE
Asia. Nageia nagi (Thunb.) Kuntze
(syn of Myrica nagi Thunb.), as
suggested by Singh and Chunekar
(GVDB: 66), is native to East Asia, not
India: 176

bearded premna (vasuka) Premna barbata Wall. (← vasuhaṭṭa), according to Cakrapāṇidatta. See the discussion by Singh and Chunekar (GVDB: 362–363),

where other candidate species such as Osmanthus, Calotropis, and Trianthema are discussed. 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: 74 beautyberry (śyāmā) Callicarpa macrophylla, Vahl. See AVS: 1, 334, NK: 1, #420: 100, 125, 127, 177 beggarweed (amśumatī) Desmodium gangeticum (L.) DC (Dymock: 1, 428, GJM1: 602, NK: 1, #1192; ADPS: 382, 414 and AVS: 2, 319, 4.366 are confusing): 142 beggarweed ($vid\bar{a}rigandh\bar{a}$) $\rightarrow \dot{s}\bar{a}laparn\bar{\iota}$. 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: 49, 105, 284 beleric myrobalan (bibhītaka) Terminalia bellirica Roxb. One of the components of the three myrobalans (*triphalā*) GVDB: 274, 196: 291 Bengal quince (bilva) Aegle marmelos (L.) Corr. See AVS: 1, 62, Chevillard: 161, NK: 1, #62, i(MW: 732a): 73, 95, 97, 102, 177, 280, 289 big poison (?) (mahāviṣa) unknown.: 135 big thorn apple (?) (mahākarambha) Perhaps Datura metel, L.?. See thorn apple (karambha): 133, 134

bitter gourd (paṭolī) see pointed gourd

black creeper (kālānusārī) Ichnocarpus frutescens R. Br. or Cryptolepis

buchanani Roemer & Schultes.

Probably a synonym for *kṛṣṇasārivā* (GVDB: 94-95). I. frutescens has dark,

(paṭola), cite[233]gvdb: 176

resinous rock exudate. See

Mahākośa: 1, 21: 157

grandiflora, Wight, also has black stems. Synonym of kālānusāriņī, kālānusārivā. kālanusārya may be a synonym of tagara, itself hard to identify: 175, 275 black creeper (pālindī) Ichnocarpus frutescens, (L.) R.Br. or Cryptolepis buchanani, Roemer & Schultes. See AVS: 3, 141, 145, 203, NK: 1, #1283, 1210, ADPS: 434. Palhana on SS 5.1.82 identified *pālindī* with *trivṛt* (turpeth) and Singh and Chunekar (GVDB: 246) supported this as a usual identification: 127, 130, 141, 142, 176 black nightshade (kākamācī) Solanum nigrum, Linn., GVDB: 86-87. May also be the less poisonous S. dulcamara, "bittersweet nightshade," K & B: 1,889–892:185,278 black pepper (marica) Piper nigrum, L. See ADPS: 294, NK: 1, #1929: 106, 184, 196, 279, 291 black sarsaparilla (*kālānusārivā*) see Indian sarsaparilla (sārivā); see also black creeper (kālānusārī). Problems about identifying this plant are discussed at GVDB: 94-95 and GVDB: 429-431: 186 blackboard tree (saptachada) Alstonia scholaris R. Br. GVDB: 420: 126, 275 blackboard tree (saptaparna) see blackboard tree (saptachada): 184 blackbuck (harina) Antilope cervicapra, L. See BIA: 270 IW: 95, 165, et passim: 130 blue water-lily (utpala) Nymphaea stellata, Willd. See GJM1: 528, IGP 790; bitumen (adrija) \rightarrow śilājit. A tar-like, black, Dutt: 110, NK: 1, #1726: 31, 125, 141, 142, 186, 196, 197, 279 bluebell barleria (kuravaka) see bluebell barleria (kuruvaka): 177 bluebell barleria (kuruvaka) Or kurubaka. Singh and Chunekar (GVDB: 108) notes that this is sometimes listed as a type of rice, as at Suśrutasamhitā 1.46.8

rust-colored stems, so has been

preferred here. However, Cryptolepis

- (Su 1938: 215). Further discussion at GVDB: 447–448, sub bluebell barleria (*saireyaka*), where *kurubaka* is said to be identifiable with *baka* and *būka*. Singh and Chunekar (GVDB) finally propose a red-flowering Rhododendron, admitting that this is a novel suggestion: 133, 275
- bluebell barleria (*saireyaka*) A Barleria, perhaps B. cristata L. that is particularly well-known in South India. Four kinds are distinguished in ayurveda, based on the colour of their flowers. See substantive discussion at GVDB: 444–449: 276
- bull's head (*gokṣura*) Tribulus terrestris L. GVDB: 144–145, 193. A component of lesser five roots: 276
- bull's head (*trikaṇṭaka*) → bull's head (*gokṣura*) GVDB: 193. A component of lesser five roots: 284
- bulrush (*kaśeru*) "Two species, Scirpus kysoor Roxb., and S. grossus Linn. f., are used" GVDB: 85. Also *kaśeruka* and *kaseru*: 100, 101, 104
- calabash gourd (kūṣmāṇḍa) → puṣpaphala. Beninkasa hispida, (Thunb.) Cogn. See AVS: 2, 1127; cf. AVS: 1, 261: 279
- camphor $(karp\bar{u}ra) \rightarrow \dot{s}\bar{\imath}ta\dot{s}iva$. Cinnamomum camphora, (L.) Sieb. See IGP 253: 276
- camphor (*śītaśiva*) rarely mentioned.

 Taken as rock salt (*saindhava*) or shami tree (*śamī*), etc., by some authors,

 GVDB: 402. Dalhaṇa on 5.6.18
 (Su 1938: 581) glossed it as camphor (*karpūra*), but noticed other interpretations: 186
- cardamom (*elā*) Elettaria cardamomum, Maton. See AVS: 2, 360, NK: 1, #924, Potter_{rev}: 66: 94, 95, 142, 147, 175, 176, 186, 276
- cardamom (kṣudrailā) see cardamom (elā), GVDB: 128. This expression, "small cardamom" is only used at

- Suśrutasaṃhitā Kalpasthāna 6.17: 186 carray cheddie (viśvadevā) → gāṅgerukī Canthium parviflorum, Lam. See AVS: 1, 366 f. Or Sida rhombifolia Linn. (GVDB: 372, 444 ff. et passim): 77, 78
- cassia cinnamon (*patra*) Cinnamomum tamala, (Buch.-Ham.) Nees. See AVS: 2, 84, NK: 1, #589: 94, 95, 102, 127, 142, 186
- castor oil tree (gandharvahasta) $\rightarrow eraṇḍa$. GVDB: 135, K & B: 3, 2277: 45, 97
- castor-oil (*eraṇḍa*) Ricinus communis, L. See NK: 1, #2145, Chopra: 214: 50, 276
- castor-oil tree (*vardhamāna*) see castor-oil (*eranda*), GVDB: 361: 184
- catechu (*khadira*) Senegalia catechu (L.f.)
 P. J. Hurter & Mabb = Acacia catechu
 Willd. GVDB: 129–130: 74
- certain minerals (tārāvitāra) Unknown. It is not even certain that these are minerals. The variant reading in the vulgate, tāraḥ sutāraḥ was glossed by Dalhaṇa on 5.3.14 (Su 1938: 568) as follows tāro rūpyaṇ, sutāraḥ pāradaḥ, "tāra means silver; sutāra means mercury.": 146
- 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): 33, 288
- champak (*campaka*) Magnolia champaca (L.) Baill. ex Pierre, GVDB: 154: 186
- chebulic myrobalan (*harītakī*) Terminalia chebula Retz. GVDB: 466: 103, 126, 186, 291
- cherry (*elavālu*) Prunus cerasus, L. See GVDB: 58 for a thoughtful discussion NK: 1, #2037.: 142, 186, 276
- cherry (*elavāluka*) see cherry (*elavālu*): 184 chir pine (*sarala*) Pinus roxburghii, Sarg.
- GVDB: 423: 73, 104, 184, 186 cinnamon (*tvac*) Cinnamomum cassia, Blume. See NK: 1, #579: 186, 277

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cinnamon (tvak) see cinnamon (tvac): 176
cinnamon (varāṅga) see cinnamon (tvac),
   GVDB: 360: 184
citron (mātulunga) Citrus medica, Linn.
   GVDB: 276, 306. Also spelled mātulinga,
   mātulanga, mātulānga: 73, 102, 107,
   108, 176
cluster fig (udumbara) Ficus racemosa, L.
   See ADPS: 487: 183
cobra's saffron (n\bar{a}gapuspa) \rightarrow n\bar{a}gakeśara.
   Mesua ferrea, L. See NK: 1, #1595,
   GVDB: 220: 142
colocynth (indravārunī) Citrullus
   colocynthis (L.) Schrad., GVDB: 46.
   The two varieties of this plant are
   discussed by (ADPS: 180-183); the first
   is agreed to be colocynth, the second is
   debated but is likely to be a
   Curcubitaceae: 184, 186, 277
colocynth (mṛgādanī) see colocynth
   (indravāruņī) GVDB: 46, 318: 176
common smilax (śvadamśtra) Smilax
   aspera L., GVDB: 414: 73
convolvulus (laksmanā) Sivarajan and
   Balachandran (ADPS: 273–275)
   suggest Ipomoea marginata (Desr.)
   Verdc. or I. obscura (Linn.)
   AVS: 3, 237–238 suggests Ipomoea
   sepiaria Roxb. (looks like a little boy
   (putraka), and generates a boy
   (putrajanan\bar{\imath}), according to the
   Bhāvaprakāśa). Sivarajan and
   Balachandran (ADPS: 273–275) firmly
   reject Mandragora officinalis which is
   European; but possible consideration
   could be given to Mandragora
   caulescens C.B.Clarke, a variant that is
   known in South Asia. Cf.
   GVDB: 346–347. NK: #1546, #2323
   suggests Mandragora officinalum,
   Linn., known as putrada: 77, 78
coriander (dhānyaka) Coriandrum sativum
   L., GVDB: 213: 277
coriander (kustumburya) see coriander
   (dhānyaka), GVDB: 113: 186
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corky coral tree (pāribhadra) Erythrina
   suberosa Roxb. See GVDB: 245:
   145, 277
corky coral tree (pāribhadraka) see corky
   coral tree (pāribhadra): 97, 183
costus (kustha) Saussurea costus, Clarke.
   See NK: 1, #2239: 94, 95, 102, 127, 142,
   147, 175, 176, 184, 185
cottony jujube (k\bar{a}kol\bar{\iota}) Ziziphus
   mauritanica, Lam. See IGP: 1233, NK: 1,
   #2663; IGP 1233. Cf. NK: 1, #1170: 93,
   101, 102, 172
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: 49, 101, 104, 258
country mallow (sahadev\bar{a}) \rightarrow bal\bar{a}
   (GVDB: 428). Contains ephedrine: 77,
   78, 104
country sarsaparilla (anantā) Hemidesmus
   indicus, (L.) R. Br. See ADPS: 434,
   AVS: 3, 141–145, 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 fruitescens
   R. Rr. (GVDB: 429-431): 49, 133, 141,
crape jasmine (tagara) Tabernaæmontana
   divaricata (L.) R.Br. ex Roem. &
   Schultes. See GJM1: 557, AVS: 5, 232.
   Synonym of nata. 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 or a
   Nymphoides (see water snowflake (?)
   (kumudavatī)), but there remain many
   historical questions about the ancient
   and regional identities of this plant See,
   e.g., AVS: 5, 334, 345. See also
   IGP: 1147, K & B: 1, 796, #758: 94, 95,
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102, 127, 142, 175, 185, 281, 292

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crimson trumpet-flower tree (pāṭalā)
   Stereospermum chelonides, (L. f.) A.
   DC. See GJM1: 573, AVS: 5, 192 ff,
   ADPS: 362 f, AVS: 3, 1848 f, IGP 1120,
   Dymock: 3, 20 ff: 280, 292
croton tree (nāgadantī) Croton persimilis
   Müll.Arg., GVDB: 222: 184, 278, 288
croton tree (nāgavinnā) Croton persimilis
   Müll.Arg. GVDB: 222 I have taken this
   as croton tree (nāgadantī) because of
   context in Suśrutasamhitā Kalpasthāna
crow (?) (kāka2) an unidentified poisonous
   plant apparently called "crow." Singh
   and Chunekar (GVDB: 86) note that
   several drugs named after the crow are
   unidentifiable. Black nightshade,
   (k\bar{a}kam\bar{a}c\bar{i}) is toxic, but this is a stretch:
datura (dhattūra) Datura metel, L. See
   AVS: 2, 305 (cf. Abhidhānamañjarī),
   NK: 1, #796 ff. Potter<sub>rev</sub>: 292 f,
   ADPS: 132: 46
deodar (bhadradāru) Cedrus deodara,
   (Roxb.ex D.Don) G. Don. See AVS 41,
   NK: 1, #516: 40, 101, 105, 142, 184
deodar (devadāru) Cedrus deodara (Roxb.)
   Loud. GVDB: 206-207: 73, 102, 186,
   258, 278
deodar (suradāru) see deodar (devadāru):
devil's dung (hingu) Ferula foetida Regel.,
   GVDB: 471–472: 74, 76, 175
dried ginger (n\bar{a}gara) \rightarrow dried ginger
   (śuṇṭhī) GVDB: 221–222: 76, 175
dried ginger (śunthī) Zingiber officinale,
   Roscoe. See ADPS: 50, NK: 1, #2658,
   AVS: 5, 435, IGP: 1232: 100, 278, 291
dried meat (vallūra) MW: 929,
   Mahākośa: 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): 32
drum-giver (?) (lambaradā) Unknown; cf.
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GVDB: 348: 133
elixir salve (ras\bar{a}\tilde{n}jana) \rightarrow a\tilde{n}jana. See
   Indian barberry: 40, 50
embelia (vidanga) Embelia ribes, Burm. f.
   See ADPS: 507, AVS: 2, 368, NK: 1,
   #929, Potter<sub>rev</sub>: 113: 40, 73, 95, 142, 175,
emblic myrobalan (āmalaka) Phyllanthus
   emblica, L. See AVS: 4, 256: 74, 103,
   104, 196, 291
emetic nut (karaghāṭa) Probably a synonym
   for karahāṭa (emetic nut), q.v.,
   GVDB: 74: 278
emetic nut (karaghātaka) see emetic nut
   (karaghāta) : 134, 183
emetic nut (karahāṭa) Randia dumetorum,
   Lamk. See GVDB: 291-292 and NK: 1,
   #2091. Singh and Chunekar (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.: 278
emetic nut (?) (karatā) Not in GVDB. Cf.
   perhaps karahāṭa (emetic nut): 133
emetic nut (madana) Randia dumetorum,
   Lamk. See NK: 1, #2091: 126, 260
false daisy (bhṛṅga) Eclipta prostrata (L.)
   L. See GVDB: 288: 73
false daisy (subhangura) (su) bhangura =
   bhṛṅga? Eclipta prostrata (L.) L. See
   GVDB: 288: 132
fermented rice-water (dh\bar{a}ny\bar{a}mla) \rightarrow k\bar{a}\tilde{n}j\bar{\imath},
   kāñjikā, sauvīra. GVDB: 458, NK: 2,
   appendix VI, #18: 47, 48
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: 129
fire-flame bush (dhātakī) Woodfordia
   fruticosa (L.) Kurz. See AVS: 5, 412,
   NK: 1, #2626: 74, 126
five roots (pañcamūla) Described at
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Suśrutasamhitā 1.38.66-69

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(Su 1938: 169). There are two
   pañcamūlas, the laghupañcamūla (the
   lesser five roots) and bṛhatpañcamūla
   (greater five roots), with differing
   properties. Combined they are called
   daśamūla (ten roots). See also
   Mahākośa: 1, 468: 73
flame-of-the-forest (palāśa) Butea
   monosperma (Lam.) Taub. GVDB: 241.
   pālāśa in some sources: 74, 97
flax (atasī) Linum usitatissimum, L. See
   NK#1495: 101
foxtail millet (priyangu) \rightarrow \acute{s}y\bar{a}m\bar{a}. Setaria
   italica (L.) P. Beauvois GVDB: 263-264,
   GJM1: 576. The most widely-grown
   species of millet in Asia. Some say
   Callicarpa macrophylla, Vahl. See
   AVS: 1, 334, NK: 1, #420. The fruits of
   S. italica and C. macroyphylla are
   similar. See also GVDB: 413, where the
   authors suggest that priyangu is meant
   by gondī or gondanī and may have
   originally been called gundrabīja: 40,
                                                  bark": 147
   142, 147, 175, 176, 196, 279
foxtail millet (priyangū) see foxtail millet
   (priyangu): 186
fragrant lotus (saugandhika) A type of
   white water-lily (kumuda) or blue
   water-lily (utpala), GVDB: 457: 31
fruit of the marking-nut (āruṣkara) see
   marking-nut (aruṣkara). "āruṣkara =
   aruşkara phala" ADPS: 23; see also
   MW: 151: 176
gajpipul (gajapippalī) GVDB: 469, 132, syn.
   hastipippalī. A controversial plant, but
   the conjecture of Singh and Chunekar
   that Scindapsus officinalis (Roxb.)
   Schott is the more ancient identity is
   accepted here: 279, 295
gajpipul (hastipippalī) see gajpipul
   (gajapippalī), GVDB: 469, 132: 184
galangal (galangala) Alpinia galanga (L.)
   Sw. Identified with grey orchid in
   Kerala (ADPS: 398). The name is
   borrowed from Chinese, perhaps via
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Persian or Arabic (Peter: 2, 304), and the name does not occur in early āyurvedic literature (GVDB): 280 galls (karkata) Rhus succedanea, L. See NK: 1, #2136: 135 garjan oil tree (aśvakarna) Dipterocarpus turbinatus Gaertn. f. See GVDB: 28, Chopra: 100: 145, 183, 186 giant potato ($ks\bar{\imath}ravid\bar{a}r\bar{\imath}$) possibly \rightarrow kṣīraśukla. Ipmoea mauritiana, Jacq. See ADPS: 510, AVS: 3, 222, AVS: 3, 1717 ff: 101, 282, 285, 286, 288 ginger (mahausadha) Zingiber officinale, Roscoe. See ADPS: 50, NK: 1, #2658, IGP: 1232: 130 gold (hema) gold: 142 gold and sarsaparilla (surendragopa) Unknown. Dalhana 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 golden shower tree (rājadruma) rājadruma = āragvadha. Cassia fistula L. See GVDB 37:146 golden shower tree $(r\bar{a}javrksa) \rightarrow r\bar{a}jadruma$ = āragvadha. Cassia fistula L. See GVDB: 37: 73 golden shower tree (āragvadha) Cassia fistula L. GVDB: 37-38. The plant has many synonyms.: 103, 174 gourd (alābu) Lagenaria siceraria Standl. GVDB: 25. Some say Lagenaria vulgaris, Seringe (NK: 1, #1419) but this is not appropriate for blood-letting: 27, 28, 126, 172 gourd (vallija) see gourd (vallija): 134 gourd (vallīja) This is a guess. According to some lexical sources, syn. for black pepper (marica) (MW: 929). See NK: 1, #1929. Singh and Chunekar (GVDB: 362) note that valliphala may be calabash gourd (kūṣmāṇḍa), which I follow. The related spiny bitter gourd

has poisonous seeds, but not flowers. Commenting on *Bṛhatsaṃhitā* 8.13ab and 16.24ab, Bhattotpala glossed it as mudgādi, "mung beans etc.": 279 grapes (*drāksā*) Vitis vinifera L. GVDB: 208–209: 177 greater five roots (bṛhatpañcamūla) Described at Suśrutasaṃhitā 1.38.68-69 (Su 1938: 169). Consists of Bengal quince, migraine tree, Indian trumpet tree, crimson trumpet-flower tree, and white teak: 279, 283, 291 green gram (*māṣa*) Vigna radiata (L.) R. Wilcz. See ADPS: 296, IGP 1204: 40, 101, 259 grey orchid (rāsnā) Vanda tessellata (Roxb.) Hook. ex G.Don, usually. But Pluchea lanceolata, Oliver & Hiern, is a more common identification in Punjab and Gujarat (GVDB: 337–338); Alpinia galanga (L.) Sw. is more common in Kerala (ADPS: 398; Peter: 2, 303–318), though this is usually identified with galangal. As all authorities note, the identification of this plant is debated. Sivarajan and Balachandran (ADPS: 398–401) note that sources describe it as having leaves like cardamom and sweet-smelling roots and that "there is great confusion with regard to the identity of the drug.": 73, 100, 102, 175, 279 gummy gardenia $(prthv\bar{\imath}k\bar{a}) \leftarrow$

hiṅgupatrikā, Gardenia gummifera L.f., GVDB: 257, q.v. for discussion: 176, 186 hairy bergenia (pāṣāṇabheda) Bergenia ligulata (Wall.) Engl. GVDB: 246–247:

halfa grass (*darbha*) Demostachya bipinnnata Stapf. GVDB: 201. Synonym of *kuśa*: 76, 101

halfa grass (*kuśa*) Desmostachya bipinnata, (L.) Stapf. GVDB: 111, AVS: 2, 326: 101, 169, 184

hare foot uraria (kroṣṭakamekhalā) see hare

foot uraria (*pṛśniparṇī*) *Mahākośa*: 1, 246. *kṛoṣṭaka* can mean
"jackal" *śṛgāla*, as in *śṛgālavinna*, "a kind of *pṛśnaparṇī*) *Mahākośa*: 1, 839: 176

hare foot uraria (*pṛthakparṇī*) → hare foot uraria (*pṛśniparṇī*) and rajmahal hemp (*mūrvā*) GVDB: 257. A component of lesser five roots: 103, 284

hare foot uraria (*pṛśniparṇī*) → *sahā*?

Uraria lagopoides, DC. and U. picta
Desv. See GVDB: 257–258, GJM1: 577,
Dymock: 1, 426, AVS: 1, 750 ff, NK: 1,
#2542; ADPS: 382, AVS: 2, 319 and
AVS: 4, 366 are confusing. Also called *pṛthakparṇī*. A component of lesser five
roots: 100, 101, 280

heart-leaf sida (*balā*) Sida cordifolia, Linn. See ADPS: 71, NK: 1, #2297: 49, 101, 104, 106, 142, 258

heart-leaved moonseed (amṛtā) → guḍūcī.
Tinospora cordifolia, (Willd.) Hook.f.
& Thoms.? See ADPS: 38, NK: 1, #2472,
624, Dastur #229: 127, 141

heart-leaved moonseed (guḍūcī) Tinospora cordifolia, (Thunb.) Miers. ADPS: 38, NK: 1, #2472 & #624, Dastur #229, GVDB: 141–142. Also identified as Cocculus cordifolius DC. by Nadkarni (NK) and others (see also the Tropicos botanical database): 73, 102

heart-leaved moonseed (somavallī)
Tinospora cordifolia (Thunb.) Miers.
GVDB: 456. Likely, but uncertain: 127

heart-leaved moonseed creeper (amṛtavalli) See amṛtā: 258

henna (*madayantikā*) Lawsonia inermis, L. See AVS: 3, 303, NK: 1, #1448, Potter_{rev}: 151: 128

hibiscus (?) (ambaṣṭhā) possibly Hibiscus rosa-sinensis L.? Singh and Chunekar (GVDB: 18–19) discuss the confusions surrounding the identity of this plant, and especially between this plant and velvet-leaf (pāṭhā); they must be different items. Singh and Chunekar

propose that *ambasthā* is either the fruit are described in the Suśrutasamhitā of Hibiscus or the galls of a Quercus or (NK: 2, Appendix 192). Kṣaudra is the Tamarix species. According to product of a small bee of tawny colour, Meulenbeld 1974*b*: 599, vanakārpāsī is called *kṣudra* : 109, 130, 196, 197 more likely a name for a hibiscus: 177 horned pondweed (śaivāla) also śaivāla, Himalayan birch (bhūja) see Himalayan śevāra. Zannichellia palustris L. The birch (*bhūrja*): 184 uncertainties of this identification are Himalayan birch (bhūrja) Betula utilis D. discussed by Singh and Chunekar Don, GVDB: 287: 281 (GVDB: 409). Sometimes identified with scutch grass ($d\bar{u}rv\bar{a}$) (GVDB: 409). Himalayan mayapple (vakra) Identified as Ceratophyllum demersum Podophyllum hexandrum, Royle Linn. ("hornwort") by AVS: 2, 56–57x: (NK: #1971), K & B: 1, 68. But perhaps 102, 281, 287 a synonm of crape jasmine (tagara, nata hornwort ($jalaś\bar{u}ka$) $\rightarrow jalanīlik\bar{a}$. q.v. (GVDB: 354)): 147, 175, 176 Ceratophyllum demersum, L. See Himalayan monkshood ($ativis\bar{a}$) $\rightarrow vis\bar{a}$ AVS: 2, 56, IGP: 232. Singh and Aconitum heterophyllum Wall. Chunekar (GVDB: 166) suggest horned GVDB: 12, NK: 1, #39. Also "atis pondweed. Dalhana noted on 1.16.19 roots": 92, 128, 130, 147, 184, 186 (Su 1938: 79) that some people Himalayan monkshood ($vis\bar{a}$) $\rightarrow ativis\bar{a}$ interpret it as a poisonous, hairy, GVDB: 12, 373: 287 air-breathing, underwater creature: 49 Himalayan yew (sthauneya) see Himalayan horse gram (kaulattha) See horse gram yew (sthauneyaka): 186 (*kulattha*): 170 Himalayan yew (sthauneyaka) Singh and horse gram (kulattha) Macrotyloma Chunekar (GVDB: 458–459) suggested uniflorum (Lam.) Verdcourt, syn. Taxus baccata L., but that tree is Dolichos biflorus, L., D. uniflorus, endemic to the Mediterraenean and not Lam., GVDB: 109, POWO: sub South Asia. Poudel et al. 2013 show Macrotyloma uniflorum: 105, 106, 174, that T. contorta Griff., T mairei (Lemée 187, 281 & Lév.) and T. wallichiana Zucc. are horseradish tree (madhukaśigru) Moringa distributed in the Hindu Kush oleifera Lam., GVDB: 398–399. See Himalaya region. The Nepalese name horseradish tree (*śigru*): 183 Thuneraka is etymologically cognate horseradish tree (*murungī*) see horseradish with the Sanskrit name. T. contorta is of medicinal importance, so its common tree (*śigru*) (GVDB: 311): 176 name is used here: 175, 281 horseradish tree (śigru) Moringa oleifera hogweed (punarnavā) Boerhaavia diffusa, Lam. See IGP: 759, GJM1: 603, Dymock: 1, 396, GVDB: 398-399: 102, L. See ADPS: 387, AVS: 1, 281, NK: 1, #363: 103, 128, 141, 177 103, 281 Holostemma creeper $(i\bar{\imath}vant\bar{\imath}) \rightarrow$ hyacinth beans (*nispāva*) Lablab purpureus sūryavallī? Holostemma ada-kodien, (L.) Sweet (1826) GVDB: 228: 91 Schultes. See ADPS: 195, AVS: 3, 167, Indian barberry $(a\tilde{n}jana) \rightarrow ras\bar{a}\tilde{n}jana$, 169, NK: 1, #1242: 104, 286 dāruharidrā. Berberis aristata, DC. holy basil (surasa) Ocimum tenuiflorum, Dymock: 1, 65, NK: 1, #335, GJM1: 562, Linn. GVDB: 438-439: 177 IGP: 141: 50, 129, 278

Indian barberry (dāruharidrā) Berberis

honey (kṣaudra) Eight varieties of honey

- aristata, DC. See Dymock: 1, 65, NK: 1, #685, GJM1: 562, IGP: 141, GVDB: 203: 141, 142, 282, 291
- Indian barberry $(d\bar{a}rv\bar{\iota}) \rightarrow$ Indian barberry $(d\bar{a}ruharidr\bar{a})$ GVDB: 203: 197
- Indian barberry (kālīyaka) → dāruharidrā, añjana. Berberis aristata, DC. See Dymock: 1, 65, NK: 1, #685, GJM1: 562, IGP: 141: 127
- Indian bat tree (śuṅgā) → parkaṭīvṛkṣa according to Śabdasindhu: 1058; idem also suggests vaṭavṛkṣa, i.e., Ficus benghalensis Linn. and āmrātaka, Spondias pinnata (L.f.) Kurz. (native to S.E Asia but naturalized in S. Asia). Contrasted with vaṭa at Suśrutasaṃhitā 3.2.32. Cf. MW: 1081.: 77, 78
- Indian bdellium-tree (guggula) See Indian bdellium-tree guggulu: 175
- Indian bdellium-tree (guggulu)
 Commiphora wightii (Arn.) Bhandari (GVDB: 140). This is a flowering shrub or small tree that produces a fragrant resin commonly called guggulu. The name sometimes refers to the plant and sometimes to the resin: 109, 282
- Indian beech (*naktamāla*) Pongamia pinnata, (L.) Pierre. See AVS: 4, 339, NK: 1, #2003: 40, 97
- Indian cherry (*śelu*) Cordia myxa, L. non Forssk. See GJM1: 529 (2), IGP: 291b, cf. AVS: 3, 1677 f; cf. AVS: 2, 180 (C. dichotoma, Forst.f.), NK: 1, #672 (C. latifolia, Roxb.). See Indian cherry (*śleṣmātakī*): 103, 141
- Indian cherry (śelū) see Indian cherry (śleṣmātakī), GVDB: 408: 186
- Indian cherry (*śleṣmātakā*) see Indian cherry (*śleṣmātakī*): 183
- Indian cherry (śleṣmātakī) Cordia dichotoma G. Forst., AVS: 2, 180–183. See POWO, sub C. dichotoma; Cordia myxa L., according to Singh and Chunekar (GVDB: 413–414), although they also suggest C. dichotoma

- (synonym of C. wallichii G. Don.) and C. rothii (synonym of Cordia sinensis Lam.): 176, 282
- Indian dill (śatapuṣpā) Anethum graveolens L. May also be Foeniculum vulgare Mill. See GVDB: 388 for discussion: 104, 186
- Indian elm (*cirabilva*) Holoptelea integrifolia (Roxb.) Planch. GVDB: 158, who also say that *pūtika* is a synonym; but that must be different than *pūtikā*: 282
- Indian elm (*ciribilva*) see Indian elm (*cirabilva*): 183
- Indian frankincense (*gajavṛttikā*) Boswellia serrata Roxb.; equated with Indian frankincense (*śallakī*) by some, GVDB: 392: 177
- Indian frankincense (*śallakī*) Boswellia serrata Roxb., GVDB: 392: 282
- Indian fumitory (parpaṭa) the ancient plant is probably impossible to identify, and many alternatives are used today, including especially Fumaria species (GVDB: 239–240). I have cholsen Fumaria indica (Hausskn.) Pugsley, which can be poisonous: 282
- Indian fumitory (reṇu) see Indian fumitory (parpaṭa), GVDB: 339. To be distinguished from pollen (?) (reṇukā): 134
- 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: 49, 102, 286
- Indian jujube (*sauvīraka*) Zizphus jujuba Mill., GVDB: 458, MBG: sub jujuba: 101, 170
- Indian kudzu ($vid\bar{a}r\bar{\iota}$) \rightarrow $payasy\bar{a}$. Pueraria tuberosa (Willd.) DC. See ADPS: 510, AVS: 1, 792 f, AVS: 4, 391; not Dymock: 1, 424 f. See GJM2: 444, 451,

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AVS: 1, 187, but AVS: 3, 1719 = Ipmoea
                                                  serpentina, (L.) Benth. ex Kurz. See
   mauritiana, Jacq: 49, 73
                                                  NK: 1, #2099, ADPS: 439, GVDB: 425;
                                                  cf. SS 5.5.76-78: 177
Indian laurel (plakṣa) Ficus microcarpa, L.
   f. See ADPS: 377: 184
                                              Indian symphorema (ananta) Not in GVDB
                                                  but MW: 25 says "sinduvāra" on no
Indian madder (mañjisthā) Rubia
                                                  authority (see Indian symphorema:
   cordifolia, L. See IGP, Chopra: 215,
                                                  184
   GVDB: 289: 45, 142, 175, 176, 184
                                              Indian symphorema (sinduvāra) Singh and
Indian mottled eel (varmimatsya) Almost
                                                  Chunekar (GVDB: 435) settles on
   certainly the mottled eel. MW: 962c
                                                  Symphorema polyandrum Wight as the
   noted that the varmi fish "is commonly
                                                  identity of this plant. Other authors
   called vāmi." The "vam fish," or "বান
                                                  choose Vitex negundo Linn. See further
   মাছ (bān māch)" in Bengal, is a marine
   and freshwater eel, Anguilla bengalensis.
                                                  NK: 1, #2603 (cf. use of leaves),
                                                  IGP: 1210a, MW: 1088b. Discussion by
   It is the most common eel in Indian
                                                  GVDB: 433–435: 175, 177, 186, 283
   inland waters and a prized food fish
                                              Indian trumpet tree (śyonāka) Oroxylum
   (Froese and Pauly 2022). However,
                                                  indicum (L.) Benth. ex Kurz.
   some NIA languages identify the
   "vam" fish with the Indian Pike
                                                  GVDB: 172–173. A component of
                                                  greater five roots: 283
   Conger, Congresox talabonides (Bleeker)
   (Talwar and Kacker 1984: 235, 236): 29
                                              Indian trumpet tree (tintuka) \rightarrow Indian
                                                  trumpet tree (śyonāka). Oroxylum
Indian mustard (sarṣapa) Brassica juncea,
   Czern. & Coss. See AVS: 1, 301, NK: 1,
                                                  indicum (L.) Benth. ex Kurz.
                                                  GVDB: 172–173. A component of
   #378: 32, 134, 184
                                                  greater five roots: 280
Indian pennywort (mandūkaparnī) Centella
                                              Indian trumpet tree (tuntuka) see Indian
   asiatica (L.) Urban. See GVDB: 290,
   ADPS: 289-291: 177
                                                  trumpet tree (śyonāka),
                                                  GVDB: 172-173: 184
Indian sarsaparilla (sugandhikā) see Indian
                                              indigo (nīlinī) Indigofera tinctoria, L. See
   sarsaparilla (śvetasārivā) GVDB: 430,
                                                  NK: 1, #1309, GVDB: 229-230: 283
   436: 176, 186
                                              indigo (n\bar{\imath}l\bar{\imath}) see indigo (n\bar{\imath}lin\bar{\imath}): 186
Indian sarsaparilla (s\bar{a}riv\bar{a}) \rightarrow anant\bar{a}. The
                                              Indrajao (indrayava) see vṛkṣaka (Indrajao)
   śveta variety is Hemidesmus indicus,
                                                  Holarrhena pubescens Wall. ex G.Don
   (L.) R. Br. ADPS: 434, AVS: 3, 141–145,
                                                  1837 GVDB: 376, 45 and 84: 92
   NK: 1, #1210, GVDB: 430; and the black
   form, black creeper, pālindī.
                                              Indrajao (vrksaka) \rightarrow indrayava, indrabīja,
                                                  kalinga, and kuṭaja. Holarrhena
   Ichnocarpus frutescens, (L.) R.Br. or
                                                  pubescens Wall. ex G.Don 1837
   Cryptolepis buchanani, Roemer &
   Schultes AVS: 3, 141, 145, 203, NK: 1,
                                                  GVDB: 376, 45 and 84: 76, 258, 283
   #1283, 1210, ADPS: 429-430: 141, 142,
                                              itchytree (nicula) Barringtonia acutangula
   275, 279, 283
                                                  (L.) Gaertn., GVDB: 224: 184
Indian sarsaparilla (śvetasārivā)
                                              jambul (jambū) Syzygium cumini, (L.)
                                                  Skeels. See ADPS: 188, NK: 1, #967,
   Hemidesmus indicus, (L.) R. Br. See
   Indian sarsaparilla (sārivā). ADPS: 434,
                                                  Potter<sub>rev</sub>: 168, Wujastyk 2003: 126, 196
   AVS: 3, 141–145, NK: 1, #1210,
                                              jequirity (guñjā) Abrus precatorius, L. See
   GVDB: 430: 283
                                                  AVS: 1, 10, NK: 1, #6, Potter<sub>rev</sub>: 168. See
Indian snakeroot (sarpagandhā) Rauvolfia
                                                  further jequirity (kālakūṭa): 132, 133
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jequirity (kālakūṭa) Abrus precatorius, L.?
   Cf. RRS 21.14. See AVS: 1, 10, NK: 1, #6,
   Potter<sub>rev</sub>: 168. The etymology of the
   name kāla-kūṭa, "black-top" fits with the
   striking appearance of jequirty seeds.
   GVDB: 193 does not attempt to identify
   the plant. The Rasaratnasamuccaya of
   pseudo-Vāgbhaṭa (21.14) says that the
   kālakūṭa poison is similar to "crow's
   beak" (kākacañcu), which is a more
   certain name for jequirity: 134, 283
kutki (kaṭukā) Picrorhiza kurroa Royle ex
   Benth. (GVDB: 64–65): 92, 109,
   284, 285
kutki (katurohan\bar{\imath}) \rightarrow kutki (katuk\bar{a}),
   GVDB: 66, 64–65: 175
kutki (katurohinī) see kutki (katukā),
   GVDB: 66, 64-65: 186
leadwort (agniśikhā) Plumbago zeylanica
   (or rosea?), L. See NK: 1, #1966, 1967:
leadwort (citraka) Plumbago zeylanica (or
   indica?), L. See RA. 6.124, ADPS: 119,
   NK: 1, #1966, 1967: 40, 74, 92, 97,
   108, 175
leadwort (p\bar{a}laka) \rightarrow citraka. Plumbago
   zeylanica (indica? rosea?), L. See Rā.
   6.124, ADPS: 1, 119, NK: 1, #1966, 1967:
   134
leadwort (vidyutśikhā) see leadwort
   (agniśikhā): 133
lemon grass (u\acute{s}\bar{\imath}rabheda) \rightarrow l\bar{a}majja.
   Cymbopogon jwarancusa (Jones ex
   Roxb.) Schult.. See NK: 1, #176: 292
lesser five roots (laghupañcamūla)
   Described at Suśrutasamhitā 1.38.66-67
   (Su 1938: 169). Consists of bull's head,
   poison berry, yellow-berried
   nightshade, hare foot uraria, and
   beggarweed: 276, 279, 280, 291, 294
liquorice (?) (klītaka) Glycyrrhiza glabra,
   L.? GVDB: 123–124 discuss the many
   difficulties in identifying this plant: 132
liquorice (madhuka) also yasti(ka/k\bar{a}),
   yaṣṭīmadhuka, Glycyrrhiza glabra, L.
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AVS: 3, 84, NK: 1, #1136, GVDB: 329 f.:
    49, 73, 100-105, 107, 130, 140, 142, 175,
    183, 186, 197, 284
liquorice (yast\bar{\imath}) see liquorice (madhuka):
liquorice (yaṣṭīmadhuka) see liquorice
    (madhuka): 50
lodh tree (lodhra) Symplocos racemosa,
    Roxb. See GJM1: 597, ADPS: 279 f,
    NK: 1, #2420. Singh and Chunekar
    (GVDB: 351–352) notes that there are
    two varieties, S. racemosa, qualified as
    śāvara, and S. crataegoides Buch.-Ham.
    for paṭṭikā lodhra: 40, 142, 175, 197
long pepper (kṛṣṇā) see long pepper
    (pippal\bar{\imath}): 196
long pepper (māgadha) see long pepper
    (pippalī): 129
long pepper (pippali) see long pepper
    (pippal\bar{\imath}): 175
long pepper (pippalī) Piper longum, L. See
    ADPS: 374, NK: 1, #1928,
    GVDB: 249–250, but cf. AVS: 3, 245: 73,
    74, 97, 103, 104, 108, 109, 130, 142, 184,
    187, 196, 258, 284, 291
long pepper root (pippalīmūla) see long
    pepper (pippal\bar{i}): 184
long-stamen Wendlandia (?)
    (prapaundarīka) See the substantial
    discussion by Singh and Chunekar
    (GVDB: 261). They note that it is used
    mainly in eye troubles and frequently
    with liquorice, than which it is has been
    said to be thicker, and sweet in taste. A
    candidate they suggest is Wendlandia
    heynei (Schult.) Santapau & Merchant
    (formerly W. exserta), native to India; I
    have accepted that provisionally: 135,
    175, 186, 284
long-stamen Wendlandia (?) (tilaka) see
    long-stamen Wendlandia (?)
    (prapaundarīka), GVDB: 183-184.
    Sometimes thought to be a synonym of
    viburnum (tilvaka), q.v., but this is
    probably erroneous: 186, 292
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lotus (nalina) see sacred lotus (kamala),
                                                anacarium, L. See NK: 1, #2269,
   GVDB: 218: 196, 197
                                                AVS: 5, 98, ADPS: 85–86: 97, 129, 285
lotus stalk (mṛṇāla) "Leaf stalk of sacred
                                             marsh barbel (ikṣuraka) Hygrophila
   lotus" GVDB: 318: 102
                                                auriculata (Schumach.) Heine (syn.
                                                Asteracantha longifolia (L.) Nees.),
luffa (jālinī) see ?? (kośātakī), GVDB: 168:
                                                GVDB: 42-43: 184
                                             medhshingi (vijayā-2) Dolichandrone
luffa (kośavatī) see luffa (kosātakī): 141
                                                falcata (Wall. ex DC.) Seem. The
luffa (kosātakī) Luffa cylindrica, (L.) M. J.
                                                 Sauśrutanighantu gives a number of
   Roem. or L. acutangula, (L.) Roxb.
                                                synonyms for vijayā (Suvedī and Tīvārī
   ADPS: 252–253, NK: 1, #1514 etc.
                                                 2000: 5.77, 10.143). But one of them,
   "Kośātakī appears to be used in a
   general way for all the fruit drugs of
                                                viṣāṇī (also meṣaśṛṅgī), is sometimes
                                                equated with Dolichandrone falcata
   the family Cucurbitaceae which have a
                                                 (DC.) Seemann (ADPS: 518;
   net-like structure of fibres in the pulp.
                                                GVDB: 373 f, a plant used as an
   It thus includes nearly all Luffa
                                                abortifacient and fish poison
   species..." GVDB: 121.: 285
                                                 (NK: #862): 133
mahua (madhūka) Madhuca longifolia,
   (Koenig) Macbride. See AVS: 3, 362 f:
                                             migraine tree (agnimantha) Premna
                                                corymbosa, Rottl. See AVS 1927,
   73, 200-202
                                                ADPS: 21, NK: 1, #2025, AVS: 4, 348;
maidenhair fern (hamsāhvayā) Adiantum
                                                GJM1: 523: = P. integrifolia/serratifolia,
   lunaluatum Burm f. GVDB: 463: 258
                                                L: 141, 280
Malay beechwood (śr\bar{\imath}parn\bar{\imath}) \rightarrow k\bar{a}śmar\bar{\imath}.
                                             milk-white (kṣīraśuklā) An unidentified
   Gmelina arborea Linn., GVDB: 412,
                                                plant. GVDB: 126: see purple roscoea
   96-97:73
                                                 and giant potato: 49, 288
maloo creeper (aśmantaka) Singh and
   Chunekar (GVDB: 27) note that thisis
                                             muddy (?) (kardama) unknown.: 134
                                             mulberry (kramuka) probably the
   the name of two different drugs,
                                                mulberry (t\bar{u}da); see discussion by
   Piliostigma malabaricum
                                                Singh and Chunekar (GVDB: 122): 176
   (Roxb.)Benth. or Phanera vahlii.
                                             mulberry (tūda) Morus indica L.,
   (Wight & Arn., 1834) Benth.
   (non-lactiferous), and Ficus cordifolia
                                                GVDB: 189: 285
                                             mung beans (mudga) Phaseolus radiatus L.
   Roxb. (lactiferous). I have selected P.
   vahlii in this context because of its
                                                GVDB: 310-311: 101, 104, 202
   abundance in S. Asia and its Himalayan
                                             mung beans (māṣaka) Phaseolus mungo
   and Nepalese distribution: 177, 183
                                                Linn. GVDB: 308: 127
mango (āmra) Mangifera indica Linn.
                                             munj grass (nārācaka) Saccharum
   GVDB: 37: 126, 177, 184, 196
                                                bengalense, Retz.?. See NK: 1, #2184:
mangosteen (amla) Garcinia pedunculata
   Roxb. ex Buch.-Ham. See GVDB: 20–21:
                                             musk mallow (latākastūrikā) Abelmoschus
                                                moschatus Medik., GVDB: 348: 285
marking-nut (aruṣkara) Semecarpus
                                             musk mallow (ullaka) kutki (kaṭukā) or
   anacardium L. See bhallātaka
                                                musk mallow (latākastūrikā), according
   (marking-nut tree), GVDB: 23,
                                                to GVDB: 54; I have chosen the latter
   ADPS: 85–86: 133, 279
                                                identity since A. moschatus can cause
marking-nut tree (bhallātaka) Semecarpus
                                                phototoxic dermatitis (Diedrich et al.
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2024: 621) : 286
musk mallow (ullika) see musk mallow
   (ullaka): 134
myrobalan (abhayā) Terminalia chebula,
   Retz. See ADPS: 172, NK: 1, #2451,
   Potter<sub>rev</sub>: 214: 92, 141, 147
myrobalans (pathyā) Terminalia chebula
   Retz. See NK: 1, #2451: 196
natron (suvarcikā) Sodium carbonate.
   NK: 2, #45. Dalhana identifies suvarcikā
   with svarjikṣāra 4.8.50 (Su 1938: 441):
   108, 142, 175
neem (picumarda) see neem tree (nimba),
   GVDB: 247-248: 183
neem tree (nimba) Azadirachta indica A.
   Juss., GVDB: 226: 46, 258, 286
nutgrass (kuruvinda) Unknown. Dalhana
   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. Singh and
   Chunekar (GVDB: 108) added that it
   could be a variety of rice, sastika
   dhānya: 147
nutgrass (mustaka) Cyperus rotundus, L.
   See ADPS: 316, AVS: 2, 296, NK: 1,
   #782:134
nutgrass (mustā) Cyperus rotundus, L. See
   ADPS: 316, AVS: 2, 296, NK: 1, #782:
   286
oleander spurge (mahāvṛkṣa) see oleander
   spurge (snuhī), GVDB: 302-303: 183
oleander spurge (nandā) see oleander
   spurge (snuhī), GVDB: 215: 290
oleander spurge (snuhā) see oleander
   spurge (snuhī): 97, 134
oleander spurge (snuhī) Euphorbia
   neriifolia, L., or E. antiquorum, L. See
   ADPS: 448, AVS: 2, 388, AVS: 3, 1,
   NK: 1, #988, IGP: 457b. Singh and
   Chunekar (GVDB: 459) discuss the two
   varieties distinguished by Caraka on
   the basis of their spines. Euphorbia all
   share the feature of having a
   poisonous, latex-like sap: 286, 290
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orchid tree (kovidāra) Bauhinia purpurea
   Linn. or B. variegata Linn. (probably
   the former), GVDB: 120,
   AVS: 1, 256–260: 170
paddy rice (śāli) Oriza sativa, Linn.
   GVDB: 395–396 mentioning 33 Sanskrit
   sub-variety names; AVS: 4, 193: 33, 288
pale Java tea (arjaka) Orthosiphon pallidus
   Royle ex Benth., GVDB: 24, based on
   Dalhana's descriptions, and by Sharma
   1982: 127, #60. But Ocimum basilicum
   L., according to AVS: 4, 160: 186
panacea twiner (arkapuṣp\bar{\imath}) \rightarrow arkaparṇ\bar{\imath},
   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 annus Linn.,
   but this plant is native to the Americas:
   141, 282
peas (harenu) Pisum sativum, L. Singh and
   Chunekar (GVDB: 419–420, 467–468)
   note that two plants are usually meant
   under this name, but there is no
   agreement on the identity of the
   second. Synonym of peas (satīna).
   GVDB: 468 make an argument for
   Symphorema polyandrum Wight: 102,
   141, 142, 147, 176, 196, 286, 287
peas (harenukā) see peas (harenu): 186
peas (satīna) see peas (hareṇu),
   GVDB: 419-420: 286
peepul tree (aśvattha) Ficus religiosa, L.
   See ADPS: 63: 149
periploca of the woods (mesaśrnga)
   Gymnema sylvestre (Retz.) R. Br. See
   AVS: 3, 107, NK: 1, #1173: 129
phalsa (parūṣaka) Grewia asiatica Linn.,
   GVDB: 238:74
plants like asthma plant and Gulf sandmat
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(dugdhikā) synonym of plants like

asthma plant and Gulf sandmat (kṣīriṇī), GVDB: 204-205, 127: 287 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): 282, 286, 287 plants like asthma plant and Gulf sandmat (yavaphalā) synonym of plants like asthma plant and Gulf sandmat (dugdhikā), and plants like asthma plant and Gulf sandmat (kṣīriṇī), q.v., GVDB: 327, 127: 186 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.: 291 pointed gourd (patola) Trichosanthes dioica, Roxb., GVDB: 232-233: 102, 141, 275 poison berry (bṛhatī) Solanum violaceum, Ortega. See ADPS: 100, NK: 1, #2329, AVS: 5, 151: 97, 103, 141, 142, 284 poison-altar (?) (viṣavedikā) Unknown. Possibly, at a guess, viṣamuṣṭika (strychnine tree)? GVDB: 373 Or viṣā (Himalayan monkshood): 133 pollen (?) (renukā) An unidentifiable plant. Perhaps a misreading for peas (harenu), although this is a long shot. Singh and Chunekar (GVDB: 339) suggest, on no authority, the synonyms vṛkṣaruhā, māṃsarohiṇī, or durvā, none of which help: 133, 282 pomegranate (dādima) Punica granatum Linn. GVDB: 201–202: 73, 74, 107, 108, 177 pondweed (paripelavā) Normally a neuter noun. 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: 142

pondweed (śevāla) Zannichellia palustris L. See horned pondweed: 31, 32 pongame oiltree (karañjikā) Singh and Chunekar (GVDB: 74–76) discuss complications, but probably Pongamia pinnata (L.) Pierre in Suśrutasaṃhitā 5.6.3: 184 powdered ruffle lichen (śaileya) Parmotrema perlatum (Huds.) M.Choisy (1952), although there are some inconsistencies in groups and synonyms. See GVDB: 408-409, AVS: 4, 222–225. The plant has a notably complex taxonomic history: 186, 287 powdered ruffle lichen (śaileyaka) see powdered ruffle lichen (*śaileya*): 175 prickly chaff-flower (apāmārga) Achyranthes aspera, L. See GJM1: 524 f, AVS: 1, 39, ADPS: 44 f, AVS: 3, 2066 f, Dymock: 3, 135: 45, 49, 101, 185, 287 prickly chaff-flower (vasira) also vaśīra. Perhaps Achyranthes aspera, L. GVDB: 362 describes several possible identities, including sūryāvarta, prickly chaff-flower and markatatṛṇa. See also vasukavasira (GVDB: 363): 74 prickly-leaved elephant's foot (gojihvā) syn. *gojī*. Elephantopus scaber, L. See AVS: 2, 357. Singh and Chunekar (GVDB: 145–146) argue that *gojihvā* śāka is Launaea asplenifolia (Willd) Hook. f. (creeping Launaea), a plant with Himalayan to SE Asian distribution: 287 prickly-leaved elephant's foot (gojī) Singh and Chunekar (GVDB: 145–146) observe that this plant name is unique to the *Suśrutasaṃhitā*. Since the usage is similar to that of prickly-leaved elephant's foot (*gojihvā*), q.v, it is almost certain to be the same plant.: 184

purging nut (*dravantī*) Jatropha curcas, L.

mūṣikaparṇī: 288

See AVS: 3, 261, NK: 1, #1374. A.k.a.

NK: 1, #2098: 106, 135

purging nut ($m\bar{u}$ s $ik\bar{a}$) Jatropha curcas, L. See AVS: 3, 261, NK: 1, #1374: 129 purging nut (putraśrenī) Commonly identified as croton tree ($n\bar{a}gadant\bar{i}$), GVDB: 253 "a variety of red physic nut (dantī)." But it appears in a list with nāgadantī at Suśrutasamhitā 5.6.3, and Dalhana identified it there as purging nut $(dravant\bar{\imath})$: 184 purging nut tree (*mūsikakarnī*) Jatropha curcas, L. AVS: 3, 261, NK: 1, #1374, GVDB: 317. GVDB: 317; ADPS: 23-25 discuss this issue well: 127, 128 purple calotropis (arka) Calotropis gigantea, (L.) R. Br. See ADPS: 52, AVS: 1, 341, NK: 1, #427, Potter_{rev}: 57, Chopra IDG: 305–308: 40, 49, 97, 170, 183 purple fleabane (somarājī) see scurfy pea $(b\bar{a}kuc\bar{i})$, but GVDB: 455–456 note that two areas of therapy (antitoxin, antileucoderma) may point to two plants being used under this name or a different plant with two active ingredients. A particular candidate is Baccharoides anthelmintica (L.) Moench.: 186 purple roscoea (ksīrakākolī) GVDB: 89 notes that many physicians use Roscoea procera Wall. in this context. But the identification is uncertain. Possibly connected to milk-white or giant potato: 101, 282, 285 pussy willow (vetasa) Salix caprea L., GVDB: 380–381, q.v. for the argument that this is not the same as rattan (vetra): 288 pussywillow (vañjula) see pussy willow (vetasa); Singh and Chunekar (GVDB: 356) note that this is a tree in the *nyagrodha* group and has sometimes been equated with Asoka tree (aśoka) and sometimes with sandan (tiniśa):

radish (mūlaka) Raphanus sativus, L. See

102, 184

rajmahal hemp $(morața) \rightarrow m\bar{u}rv\bar{\iota}$, Marsdenia tenacissima (Roxb.) Wight et Arn. Good discussion at GVDB: 314-316, 324: 141 rajmahal hemp (*mūrvā*) Gongronemopsis tenacissima (Roxb.) S.Reuss, Liede & Meve (= Marsdenia tenacissima (Roxb.) Moon), GVDB: 314–316. One of the twenty-two drugs in the group madanādi. Singh and Chunekar and ADPS: 310–313 discuss the long controversy about the identity of this plant. Sansevieria roxburghiana Schult. & Schult.f. ("Indian bowstring hemp") was preferred by Meulenbeld (GJM1: 590) and the sources he cited, including NK: 1, #2216, K & B: 4, 2457; ADPS: 310 mention this identity as being local to Bengal, but note that the plant is not a creeper: 104, 280 rattan (vetra) Calamus rotang, L. See AVS: 1, 330, NK: 1, #413. Singh and Chunekar (GVDB: 381) prefer C. tenuis, Roxb., which is also native to S. and S.E. Asia: 288 realgar (manaḥśilā) Arsenii disulphidium NK: 2, #11: 196 red gourd (bimbī) Coccinia indica, W. & A. See PVS 1994.4.715; NK: 1, #534:126 red ochre (gairika) Hellwig 2009: 140-141. NK: 2, #40; the same source, at #6, gives kaoolinum or china clay: 142, 175, 177, 186, 196, 197 red physic nut (dantī) Baliospermum solanifolium (Burm.) Suresh, GVDB: 200: 95, 134, 184, 288 resin of white dammer tree (sarjarasa) GVDB: 424–425. See white dammer tree (*sarja*): 104, 186 rice grains (tandula) Oriza sativa, Linn. Same as paddy rice (*śāli*) GVDB: 174; or just "grains": 33 rice-grain chaff (śālitaṇḍulakāṇḍana) See chaff: 33

rock salt (saindhava) See NK: 2, M#48, Watt_{Comm}: 963–971: 32, 73, 108, 175, 196, 276 rosha grass (dhyāmaka) Cymbopogon martinii (Roxb.) Wats. See AVS: 2, 285, NK: 1, #177: 142, 175, 186 royal jasmine (*mālatī*) Jasminium grandiflorum, L. See NK: 1, #1364, ADPS: 285–288: 127, 289 royal jasmine (*sumanā*) see royal jasmine (*mālatī*), GVDB: 437: 186 sacred lotus (kamala) Nelumbo nucifera, Gaertn., GVDB: 73-74, Dutt: 110, NK: 1, #1698: 285, 289 sacred lotus (padma) see sacred lotus (kamala), GVDB: 235–236: 31, 102, 127, 186 saffron (bāhlīka) syn. of saffron (kuṅkuma), q.v., GVDB: 273-274: 184 saffron (kuńkuma) Crocus sativus Linn., GVDB: 100: 289 sage-leaved alangium (ankolla) Alangium salvifolium (Linn. f.) Wang. GVDB: 5–6. See also AVS: 1, 77; cf. NK: 1, #88: 126, 177, 289 sage-leaved alangium (ankotha) see sage-leaved alangium (ankolla): 183 sal group of trees (śālasārādi) śālasārādi is a group (gana) of twenty-three trees listed at 1.38.8-9 (Su 1938: 165), Mahākośa: 1,898:74 sal tree (śālā) Shorea robusta, Gaertn.f. See AVS: 5, 124: 196 sandalwood (candana) Santalum album, L. See ADPS: 111, NK: 1, #2217. See GVDB: 152–153 for discussion of types, including white and red (Pterocarpus santalinus (L.f.)): 75, 102, 104, 142, 170, 176, 185, 293 sandan (tiniśa) Ougeinia oojeinensis (Roxb.) Hochr. GVDB: 181, q.v. for discussion about whether tiniśa and syandana are to be separated. If other trees are in the frame for either name,

Singh and Chunekar (GVDB) suggest

- Lagerstroemeia parviflora Roxb. (sidhraka/siddhaka) and L. flos-reginae Retz. (jārula by some). See GVDB: 432: 183, 186, 288
 sappanwood (pattāṅga) Also pattaṅga.
 Caesalpinia sappan, L. AVS: 1, 323, K & B: 2, 847 f, GVDB: 234: 40, 50
 scarlet mallow (bandhujīva) Pentapetes phoenicea, L. NK: #1836, GVDB: 268:
- scented pavonia (*bālaka*) Pavonia odorata, Willd. See ADPS: 498, NK: 1, #1822:
- scented pavonia (toya) \rightarrow bālaka? Pavonia odorata, Willd. ADPS: 498, NK: 1, #1822: 186
- scramberry (*tālīsapatra*) see scramberry (*tālīśa*): 186
- scramberry (tālīśa) Singh and Chunekar (GVDB: 179, 458–459) discusses the several identifications and regional differences in identifying this plant. Taxus baccata Linn. is a common candidate, as is Flacourtia jangomas (Lour.) Raeusch. (scramberry): 102, 197, 289
- screwpine (*ketaka*) Pandanus tectorius Parkinson ex Du Roi, GVDB: 116: 274 scurfy pea (*bākucī*) Identified as Cullen corylifolia (L.) Medik. ADPS: 69–70, GVDB: 272: 288
- scutch grass (*dūrvā*) Cynodon dactylon (Linn.) Pers., GVDB: 205: 281, 289
- scutch grass (granthilā) see scutch grass (dūrvā), Mahākośa: 1, 303, citing the Rājanighaṇṭu. It should be an aromatic in this context. Monier-Williams et al.: 371 said "two kinds of Dūrvā grass and of a kind of Cyperus" on lexical authority, perhaps also the Rājanighaṇṭu where it is listed amongst sweet-smelling plants. Other sources identify it as Cissus quadrangularis, L., i.e., Veltd grape (Ś. Gupta 1887: 272), or Bengal quince (bilva): 186

sedge (kuṭannaṭa) → plava, tagara, or śyonāka, according to commentators (GVDB: 102–103). Singh and Chunekar leans towards the plava, but that plant too is difficult to identify. Various sources identify kuṭannaṭa as Cyperus rotundus L., C, scariosus R. Br., Oroxylum indicum (L,) Benth. ex Kurz (= Bignonia Indica L.) or even Cinnnamomum verum J.Presl. The Cyperus genus comprises about 700 species of sedges, and I have chosen "sedge" as a generic indication of the likely identity of this plant: 175, 290 sedge (kuṭannaṭā) see sedge (kuṭannaṭa): 186 sesame (tila) Sesamum indicum L. GVDB: 183: 186, 187 sesame oil (taila) Sesamum indicum L. GVDB: 183: 49, 170 shami tree (śamī) Prosopis cineraria (L.) Druce GVDB: 390: 183, 276 silk-cotton tree (śālmalī) Bombax malabarica. See Issar: 152: 186 siris (śirīṣa) Albizia lebbeck, Benth. See AVS: 1, 81, NK: 1, #91, GVDB: 399–400.	identified with nākulī, or gandhanākulī. See (GVDB: 219, 436): 132 spikenard (jaṭā) see spikenard (jaṭamāṃsī): 186 spikenard (jaṭāmāṃsī) Nardostachys jatamansi (D.Don) DC, GVDB: 163. See also NK: 1, #1691: 290 spikenard (māṃsī): 142, 176, 186 spikenard (nalada) see spikenard (jaṭamāṃsī): 124, 176, 186 spiny bitter gourd (karkāruka) Momordica cochinchinensis (Lour.) Spreng., (Thunb.) Cogn. SeeAVS: 2, 1135, IGP 754 (or Beninkasa hispida?AVS: 2, 1127; cf. AVS: 1, 261). M cochinchinensis has poisonous seeds (NEH: 279): 279 spurge (?) (nandanā) an unknown poisonous plant, a.k.a. (equally obscurely) udīmānaka, GVDB: 215 (where it is m.). Perhaps a synonym of oleander spurge (snuhī), like oleander spurge (saptalā) Singh and Chunekar (GVDB: 421–422) discuss the four
Cf. white siris : 141, 170, 185, 186, 196, 293	candidates for this plant, three of which are Euphorbias: 106, 177
siris seeds (śirīṣamāṣaka) Albizia lebbeck,	strychnine tree (<i>viṣamuṣṭika</i>) Strychnos
Benth. See AVS: 1, 81, NK: 1, #91: 126 small-flowered crape myrtle (<i>sidhraka</i>)	nux vomica Linn. GVDB: 373: 287 sugar (<i>sitā</i>) Dalhaṇa makes this equation
Lagerstroemia parviflora Roxb.,	at 1.37.25 (Su 1938: 162): 142, 177
GVDB: 432: 146	sugar (śarkara) Saccharum officinarum,
smooth angelica (<i>coraka</i>) Angelica glauca Edgw. GVDB: 161. Distribution:	Linn. NK: #2182: 130 sugar cane (<i>ikṣu</i>) Saccharum officinarum,
Afghanistan, Himalaya, western Tibet	Linn. NK: #2182: 130
(POWO). Edgeworth even recorded the indigenous name "chura" (Edgeworth 1851: 53): 177, 184, 290	sunflower (sūryavallī) → ādityavallī, sūryamukhī, Helianthus annūs Linn.
smooth angelica (taskara) see smooth	GVDB: 35, 443: 141 sweet flag (<i>vacā</i>) Acorus calamus Linn. See
angelica (coraka), GVDB: 176: 186	GVDB: 352-355: 101, 108, 184
snakeroot ($sugandh\bar{a}$) \rightarrow $sarpagandh\bar{a}$ Rauvolfia serpentina Benth. ex. Kurz.	sweet plants (<i>madhuravarga</i>) The sweet plants are enumerated at
See <i>sarpagandhā</i> . But may be Aristolochia indica Linn. Has been	Suśrutasaṃhitā 1.42.11. See also GVDB: 127 : 49

sweet-scented oleander (aśvamāraka) Nerium oleander, L. See ADPS: 223, NK: 1, #1709, GVDB: 77, which discusses the white and red forms: 132 teak (śāka) Tectona grandis, L.f. See AVS: 5, 245, (MW: 1061): 183 Tellicherry bark (kuṭaja) Holarrhena pubescens Wall. ex G.Don, with Wrightia tinctoria and W. arborea considered GVDB: 101-102, ADPS: 267–270: 97, 183, 279 ten roots (daśamūla) Described at Suśrutasaṃhitā 1.38.70-71 (Su 1938: 169) as a combination of the lesser five roots and the greater five roots: 279 the three myrobalans (triphalā) chebulic myrobalan beleric myrobalan and emblic myrobalan (harītakī bibhītaka and āmalaka) One of the most-often mentioned drugs in the Bṛhattrayī GVDB: 194–196: 95, 175, 176, 275 the three pungent drugs (katutrika) see the three pungent drugs (trikatu): 186 the three pungent drugs (trikațu) dried ginger, long pepper, and black pepper (śunthī, pippalī, and marica) GVDB: 193: 175, 291 the two types of clitoria (*śvete*) see white clitoria (śvetā): 186 the two types of turmeric (haridre) see turmeric (haridrā) and Indian barberry (dāruharidrā), GVDB: 465–466: 186 thorn apple (*karambha*) Datura metel, L. See GVDB: 76 for useful discussion. Also, AVS: 2, 305 (cf. Abhidhānamañjarī), NK: 1, #796 ff. Potter_{rev}: 292 f, ADPS: 132. Possibly the same plant as plumed cockscomb (indīvara) (GVDB: 76, 44-45): 133, 134,

275, 287

three heating spices (tryūṣaṇa) śuṇṭhī

(Dried ginger) Zingiber officinale,

pepper) Piper longum, L.ADPS: 374,

Roscoe. ADPS: 50, NK: 1, #2658, AVS: 5, 435, IGP 1232, pippalī (long

NK: 1, #1928, and marica (black pepper) Piper nigrum, L.ADPS: 294, NK: 1, #1929: 76, 141 three-leaved caper (varuna) Crataeva magna (Lour.) DC. See AVS: 2, 202; cf. NK: 1, #696: 129, 177, 184, 291 three-leaved caper (varunaka) see three-leaved caper (varuna): 186 toothed-leaf limonia (surasī) Naringi crenulata (Roxb.) Nicolson (formerly Limonia crenulata Roxb.), GVDB: 439: 176, 186 top layer of fermented liquor (surāmaṇḍa) K & B: 2, 502, NK: 2, appendix VI, #49, McHugh 2021: 39: 47, 48 tree cotton (*kārpāsa*) G. arboreum L. ADPS: 231. Pace the identifications of Singh and Chunekar (GVDB: 92, 247), since G. barbadense L. is native to South America and G. herbaceum L. which is native to Africa: 46, 291 tree cotton (picu) See tree cotton ($k\bar{a}rp\bar{a}sa$): 48, 50 tree of heaven (arala) probably Alianthus excelsa Roxb., GVDB: 21-22: 183 turmeric (gaurī) Curcuma longa, L. See ADPS: 169, AVS: 2, 259, NK: 1, #750: turmeric (*haridrā*) Curcuma longa Linn. GVDB: 465: 103, 141, 147, 175, 291 turmeric (rajanī) Curcuma longa, L. ADPS: 169, AVS: 2, 259, NK: 1, #750: 32, 142, 176 turpeth $(trivrt) \rightarrow trvrt\bar{a}$. Operculina turpethum (Linn.) Silva Manso = Ipmoea turpethum R. Br. GVDB: 197.: 95, 130, 175, 260, 275 two kinds of salt (vasukavasira) See the discussion by Singh and Chunekar (GVDB: 362–363), who note that when vasuka is mentioned together with vasira, two varieties of salt are often meant (see vasukavasirā): 73 unknown fruit poison (venuka) see unknown fruit poison (venukā): 133

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unknown fruit poison (venukā) Bambusa
   bambos, Druce?. See NK: 1, #307,
   GVDB: 380. The Nepalese transmission
   has the m. venuka, not the f. venukā
   Singh and Chunekar (GVDB: 380) note
   that this is an unknown fruit-poison:
velvet bean (svayanıguptā) Mucuna
   pruriens DC., GVDB: 461: 196
velvet-leaf (pāthā) Cissampelos pariera, L.
   See ADPS: 366, NK: 1, #592, GJM1: 573,
   AVS: 1, 95; cf. AVS: 2, 277: 40, 76, 92,
   108, 141, 175, 176, 280
velvet-mite (indragopa) Kerria lacca
   (Kerr.). Lienhard 1978: 125
verbena (bhārgī) see verbena (bhārṅgī):
   176, 186
verbena (bhārngī) \rightarrow phañjī.
   Clerodendrum serratum (L.) Moon or
   C. serratum; see AVS: 2, 121, ADPS: 87:
   292
verbena (phañjī) Clerodendrum serratum,
   L. See AVS: 2, 121, ADPS: 87: 128
vetiver (uśīra) Chrysopogon zizanioides
   (L.) Roberty, also called "khus." NK: 1,
   #180, GVDB: 54 identify it as vetiver:
   74, 127, 170, 292
vetiver and lemon grass (?) (uśīre) "the
   two uśīras," perhaps vetiver (uśīra) and
   lemon grass (uśīrabheda) : 186
viburnum (tilvaka) Viburnum nervosum
   D.Don. In their thoughtful article,
   Singh and Chunekar (GVDB: 185–186)
   separate tilvaka from lodhra, a conflation
   they attribute to Dṛḍhabala. AVS: 5, 219
   makes the same separation, noting that
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in Kerala the plant Jatropha curcas L. is used in this context. Cf. many varieties

POWO confirms that V. nervosum has

an appropriate Himalayan distribution.

wrongly considered to be a synonym of

long-stamen Wendlandia (?) (tilaka) (GVDB: 186) : 95, 184, 284, 292

listed by Griffiths (IGP: 1200 ff.).

viburnum (tilvaka) is sometimes

viburnum extract (tailvaka) see viburnum (tilvaka): 196 'Virāṭa's plant' (vairāṭaka) unknown. See ?: 134 water snowflake (?) (kumudavati) see water snowflake (?) (kumudavatī): 134 water snowflake (?) ($kumudavat\bar{\iota}$) This is an unidentifiable plant whose name means, etymologically, "with lilies." MW: 292 gives Nymphoides indica (L.) Kuntze (formerly Villarsia indica) on no authority; I have used the common name of N. indica as a possiblity, but this is not known to be poisonous; on the contrary, it is used medicinally (Khan et al. 2018). N. indica is illustrated on p. 6 of the Voynich manuscript. Khan et al. (2018) assert that this is the same plant as tagara, although this is not a widely-held view (see crape jasmine (tagara)): 133, 277, 292 watered buttermilk (udaśvit) MW: 183: 126 weaver's beam tree (mokṣaka) see weaver's beam tree (muskaka): 292 weaver's beam tree (muskaka) Schrebera swietenioides, Roxb. See AVS: 5, 88, Lord, NK: 1, #2246, GVDB: 242–243: 97, 146, 292 weaver's beam tree (pāṭalī) usually a synonym for crimson trumpet-flower tree (pāṭalā), but Singh and Chunekar (GVDB: 242–243) argue that it is weaver's beam tree (mokṣaka) because some authors distinguish two colours (unlike *pāṭalā*): 97, 183, 186 weaver's beam tree (viśalyā) Schrebera swieteniodes Roxb. ← *kuberāksī*. Singh and Chunekar (GVDB: 371) notes that this name is a synonym for many other

plants, including lāngālī, indravāruņi,

gudūcī etc. Dalhaṇa identified it with pātalā, kāsthapātalā, and agniśikhā tree,

all of which may be called *śvetamoksaka*

or kuberākṣī: 175

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weevil wort (tālamūlikā) GVDB: 178–179:
weevil wort (t\bar{a}lapatr\bar{\iota}) \rightarrow t\bar{a}lam\bar{\iota}lik\bar{a}, weevil
   wort, q.v. GVDB: 178: 177
white babool (arimeda) Acacia
   leucophloea, (Roxb.) Willd. See
   AVS: 1, 23: 40, 184
white calotropis (alarka) Calotropis
   procera, (Ait.) R. Br. See NK: 1, #428,
   Chopra: 46b, Chopra IDG: 305–308: 49
white clitoria (śvetā) Clitoria ternatea, L.
   See AVS: 2, 129, NK: 1, #621.
   GVDB: 416–417 notes that there are two
   types, kṣudrā (white, according to
   Dalhana) and mahā (blue, according to
   Dalhana). Sometimes given as a
   synonym for winged-stem canscora,
   but sometimes as a contrasting plant:
   127, 176, 177, 185, 291
white cutch tree (somavalka) Acacia
   polyacantha, Willd. See AVS: 1, 30, IGP
   7, GJM1: 602, AVS: 2, 935; pace NK: 1,
   #1038: 128, 146
white dammer tree (sarja) Vateria indica,
   L. See NK: 1, #2571, AVS: 5, 349 f,
   AVS: 1, 292 f, Chopra: 253a. Singh and
   Chunekar (GVDB: 424) discussed
   whether this term might be broadened
   to any resinous tree and decided
   against: 40, 73, 288, 293
white dammer tree (sarjja) see white
   dammer tree (sarja): 183
white sandalwood (bhadraśriya)
   Santanlum album Linn. See white
   sandalwood (bhadraśrī ) : 102, 186
white sandalwood (bhadraśrī) Santanlum
   album Linn. see sandalwood (candana)
   GVDB: 152, 282 and Carakasamhitā
   ci.4.102 (Ca 1941: 434) where it is
   contrasted with lohitacandana: 75, 293
white siris (?) (kapītana) Singh and
   Chunekar (GVDB: 72–73) note that this
   stands for at least two plants, milky and
   non-milky. For the latter type, they
   propose Albizia procera (Roxb.)
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Benth., Thespesia (hibiscus-like, but
   not endemic to S. Asia) or Spondias
   (cashew). Six different identifications
   are made by Monier-Williams et al.
   (MW: 251), without authority: 183
white siris (katabhī) Albizia procera
   (Roxb.) Benth. or A. lebbeck (Linn.)
   Benth. GVDB: 63-64, AVS: 1, 81-84. Cf.
   Cf. siris: 170, 290
white siris (kinihī) Albizia procera (Roxb.)
   Benth., GVDB: 98, which also discusses
   past confusions; NK: 1, #93: 141,
   176, 177
white teak (k\bar{a}r\acute{s}mar\bar{i}) \rightarrow k\bar{a}\acute{s}mar\bar{i}: 197
white teak (kāśmarya) see white teak
    (kāśmarī): 186
white teak (kāśmaryā) see white teak
    (kāśmarī): 74
white teak (k\bar{a}\pm mar\bar{\iota}) \rightarrow k\bar{a}\pm mar\gamma a, k\bar{a}\pm mar\bar{\iota},
   madhuparnī. Gmelina arborea, Roxb.
   See GJM1: 543, Trees: 51, ADPS: 240,
   GVDB: 96-97: 102, 104, 280, 293
white teak (madhuparnī) \rightarrow k\bar{a} \pm mar\bar{i} : 73
white water-lily (kumuda) Nymphaea alba,
   Linn., GVDB: 105: 31, 186, 279
wild asparagus (bahuputrā) Asparagus
   racemosus, Willd. See further wild
   asparagus (śatāvarī) Possibly a syn. for
   nandana. The bark of wild asparagus is
   toxic: 128
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:
   100-102, 104, 202, 293
wild celery (agnika) \rightarrow may be bhallātaka,
   lāṅgalī, ajamodā, moraţa, or agnimantha,
   GVDB: 4. Uncertain A plant often cited
   in Suśrutasaṃhitā, but rarely in
   Carakasamhitā (GVDB: 4). Dalhana
   glossed it at 5.2.45 (Su 1938: 566) as
   ajamodā but noted that others consider
   it to be morata. There is considerable
   complexity surrounding the
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identification of morața/mūrvā itself and

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related synonyms (GVDB: 314-316):
                                                possible synonym, Sivarajan and
                                                Balachandran (ADPS: 425-427) also
wild celery (ajamodā) Apium graveolens,
                                                suggest Canscora alata (Roth) Wall.
   L. Sometimes identified with agnika
                                                (syn of Canscora decussata Schultes &
   (wild celery), q.v.: 141, 175
                                                Schultes f.) and Convulvulus
wild Himalayan cherry (padmaka) Prunus
                                                pluricaulis Chois. The former has a
   cerasoides D.Don, GVDB: 236,
                                                more appropriate distribution and is
   AVS: 4, 353–355. MW: 585 is wide of
                                                chosen here: 294
   the mark: 102-104, 175, 176, 186
                                             winged-stem canscora (giryāhvā) see
wild spider flower (ajagandhā) possibly
                                                winged-stem canscora (girikarnikā):
   Cleome gynandra L. (syn.
   Gynandropis gynandra L.); possibly
                                             Withania (aśvagandhā) Withania somnifera
   also Basil (Ocimum basilicum Linn. or
                                                (L.) Dunal. See AVS: 5, 409 f,
   Crested Late Summer Mint (Elsholtzia
                                                Dymock: 2, 566 f, 150, GVDB: 29,
   ciliata Willd.) (GVDB: 6). But E. ciliata
                                                Chevillard: 152: 49, 96, 103, 177
   is not native to South Asia: 108
                                             wolfsbane (vatsanābha) Aconitum
wild spider flower (tailaparnika) see wild
                                                napellus, L. See AVS: 1, 47, NK: 1, #42,
   spider flower: 185
                                                Potter_{rev}: 4 f. Or Aconitum
wild spider flower (tilaparnī) Cleome
                                                chasmanthum Stapf ex Holmes,
   gynandra L., GVDB: 184-185, but see
                                                GVDB: 357: 134, 274
   the discussion of the other drug plants
                                             wood apple (kapittha) Limonia acidissima,
   sometimes intended by this name: 294
                                                L. See AVS: 3, 327, NK: 1, #1021: 103,
wild sugar cane (kāndeksu) Saccharum
                                                127, 129, 177, 183, 196
   spontaneum L., GVDB: 90: 73
                                             woody turmeric (kāleyaka) Coscinium
winged-stem canscora (girihvā) see
                                                fenestratum (Goetgh.) Colebr.,
   winged-stem canscora (girikarnikā):
                                                GVDB: 95. See V. K. Gupta et al.
                                                2015: 173-175: 186
   176
winged-stem canscora (girikarnikā)
                                             woody-fruited jujube (gopaghontā)
   sometimes \rightarrow śvetā, in which case
                                                Ziziphus xylopyra (Retz.) Willd.
                                                GVDB: 147 \rightarrow ghoṇṭā: 184
   possibly Clitoria ternatea, L., see
                                             yellow-berried nightshade (kaṇṭakārī)
   AVS: 2, 129, NK: 1, #621. Since śvetā
   and girihvā are cited as separate
                                                Solanum virginianum L. (also called
   constitutents of one formula (e.g.,
                                                Solanthum xanthocarpum, Schrad. &
   Suśrutasaṃhitā 5.5.75 (Su 1938: 579)
                                                Wendl.) GVDB: 68–69. A component of
   they cannot be the same plant.
                                                lesser five roots: 284, 294
   GVDB: 138–139 argued for
                                             yellow-berried nightshade (kṣudrā) see
   Symphorema polyandrum Wight,
                                                yellow-berried nightshade (kanṭakārī),
   which they also assigned to sinduvāra.
                                                ADPS: 100, NK: 1, #2329, AVS: 5, 164:
   When discussing śańkhapuṣpī, another
                                                141, 142
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Fauna

Fauna 295

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bad-marked rat (kulinga) etymologically,
   "having bad-marks" MW: 286, but
   unidentifiable: 181
black rat (krsna) perhaps the widespread
   Black Rat or Common House Rat,
   Rattus Rattus L., BIA: 210: 181
brown rat (kapila) name from etymology;
   unidentified. see tawny rat (aruna): 181
chital deer (pṛṣata) Axis axis, Erxleben.
   BIA: 295–296. In Suśrutasamhitā 5.5.71
   (Su 1938: 579) it seems to be specifically
   the musk that is meant. so the reference
   may be to the Musk Deer (Moschus
   moschiferus L.). But all species
   produce musk, so pṛṣata may also be
   simply Chital or Spotted Deer. See also
   IW: 93: 130, 176
civet (mārjāra) BIA: ch. 4 et passim,
   McHugh 2012: 176
fidgety rat (capala) from the etymology of
   the word. Unidentifiable mouse or rat.
   It is probably too much of a stretch to
   connect it with Dravidian forms like
   Kui superi "shrew-mouse",
   DED<sub>2</sub>: #2675: 181
fondling rat (lālana) based on etymology.
   An unknown rat or mouse: 181
gajpipul rat (vasira1) unknown type of rat
   or mouse. "Vasira," equated with
   gajapippalī is usually the name of the
   liana Scindapsus officinalis (Roxb.)
   Schott (GVDB: 132, 362) (see gajpipul
   (gajapippal\bar{\imath})). Lianas are known for
   providing a habitat for many arboreal
   animals, including rodents: 181
house shrew (chuchundara) Suncus
   murinus (Linnaeus, 1766), Wikipedia,
   BIA: 168–169 and plate 38. Probably a
   Dravidian loan word related to Tamil
   cuntan, see DED<sub>2</sub>: #2661 and
   CDIAL: #5053: 181
iguana (godheraka) The गौधरक is described
   in the Carakasamhitā as a four-legged
   snake born of a Indian monitor lizard
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that is similar to a black snake and has

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several species (6.23.134
   (Ca 1941: 577)). CDIAL: 1, #4286
   identifies this as an iguana: 189, 295
Indian monitor lizard (godhā) Varanus
   bengalensis (Daudin, 1802),
   Reptiles: 58–60, ill.: 49, 130, 295
invincible rati (ajita) etymological
   meaning; unidentifiable: 181
lac (lākṣā) Kerria lacca (Kerr.). See
   GJM1: 445, NK: 2, #32, Varshney 2000.
   Watt (Watt<sub>Comm</sub>: 1053–1066) is
   characteristically informative, and is
   definite about the antiquity of lac in
   India: 147, 176, 186
large gecko (galagodikā) A poisonous
   insect, amphibian or reptile described
   in Suśrutasamhitā 5.8.29 (Su 1938: 588)
   as a biting creature that may be white,
   black, with red stripes or rings or
   spotted. It is described just after the
   iguanas (godheraka) and before
   centipedes. The name is unstable, e.g.,
   गलगोलिका, गलदोडी, गलगोली. Cf. the
   remarks on geckos in note 433, p. 144.
   The similarity of names suggests that a
   गलगोडिका may be a non-domestic
   creature that looks similar to a
   domestic gecko. Cf. other IA parallels
   at CDIAL: 1, #4324, 4431, which point
   to a Dravidian origin for the lexeme
   (DED<sub>2</sub>:#1125) and suggests "iguana."
   The tokay gecko (Gekko gecko
   (Linnaeus, 1758)) is a large gecko
   endemic to South Asia having a
   blue-gray skin with red or orange spots
   and speckles that may change
   according to its environment like a
   chameleon. Tokay geckos, especially
   males, are aggressive and territorial
   and can inflict a strong bite. However,
   many agamids and skinks are also
   endemic to South Asia, and have
   markings that could match the
   description of the Suśrutasaṃhitā. See
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further Deuti 2020; IW: 40, 135-136: 78

296 Minerals

- little rat (*cikkira*) likely related to the Tulu "cikkeli, a small variety of mouse," and other Dravidian works related to Tamil *cikka* "small',' DED₂: #2495. See also CDIAL: #4779 on *cikka* "mouse or muskrat," from lexical sources, and #4781 *cikkā* "small" from Drav., Burrow 1948: #141: 181
- mole-rat (kokila1) Bandicotqa bengalensis (Gray & Hardwicke). Etymologically, "brown as a Kokila". CDIAL: #4324 relates kokila to golaka but it may more likely be a Dravidian loanword from koko, kogi, koki, meaning "small, little, young" DED2: 2030. This is possibly supported by Kannada kok and Telugu golatta, koku for the mole-rat, reported by Prater (BIA: 205): 181
- mongoose (*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: 130, 176
- pigeon-like (*kapotābha*) etymologically "like a pigeon;" presumably of grey colour: 181
- rala rat (*arala1*) a hapax legomenon in Sanskrit, probably a Dravidian loan from forms like Pengo, Manḍa, Kuwi etc., *orli*, *urli*, etc., DED₂:#994:181
- rat (*unduru*) Also *undura* or *indūra* in some sources, including the vulgate. A common name for a rat or mouse in many S. Asian languages from Prakrit to contemporary, CDIAL: #2095: 181
- red-toothed shrew (kaṣāyadaśana) from the etymology of the word. Shrews in the genus Sorex (as well as others in the subfamily Soricinae) have

- red-pigmented teeth. Species in South Asia include Hodgsons's brown-toothed shrew (Episoriculus caudatus), the Himalayan water shrew (Chimarrogale himalayica), the Assam mole shrew (Anourosoricini assamensis) and the Giant mole shrew (A. schmidi): 181
- river dolphin (*śiśumāra*) Platanista gangetica (Lebeck), BIA: 313–314, plate on p. 289, MW: 1076: 187
- sonny rat (*putraka*) unidentified mouse or rat. Perhaps related to Dravidian forms like Pengo *puṭki*, DED₂: #4257 (itself perhaps just a form related to Tamil *poṭi* "little"): 181
- sweet hoof (*nakha*) Unguis odoratus or Onycha, McHugh 2013, from which I adopt the name "sweet hoof." See especially McHugh's very interesting discussion about translating this term, pp. 56 ff. See also MW: 524 (on no authority): 186
- tawny rat (*aruṇa*) from the etymology of the word, perhaps Rattus norvegicus (Berkenhout, 1769), which is large, brown and common (it originated in central Asia and (likely) China, not Norway), and perhaps distinguishing it from the "large" ??: 181, 295
- tortoise (*kūrma*) Perhaps Geochelone elegans (Schoepff), Reptiles: 30 and plate, MW: 1076: 187
- white rat (*śveta1*) from the etymology, perhaps the Mus musculus, L.., although strictly, they are agouti not white. The whitetailed wood rat (*Madromys blanfordi*, Thomas) is brown but has a distinctive white end to its tail: 181

Minerals

Minerals 297

ashes (*bhasma*) ashes, corrosive when wet:
134
cuttle-fish bone (?) (*phenāśma*) Hapax
legomenon. Etymologically
"foam-stone". Perhaps cuttlefish bone,
or pumice (see Byrski 1981)? Dutt
(Dutt: 38–42) conjectured that
'foam-stone' may be impure white

arsenic obtained by roasting orpiment.: 134
orpiment (haritāla) Arsenii trisulphidum.
See NK v. 2, p. 20 ff: 134
vermilion (rakta) speculative, based on
Mahākośa: 1, 667, under raktadhātu,
citing the Dhanvantarīyanighaṇṭu: 134

298 Glossary

Glossary 299

Glossary

kalpa - procedure: 180 procedure - kalpa: 180

 $m\bar{u}$ și $k\bar{a}$ - rats: 180 rats - $m\bar{u}$ și $k\bar{a}$: 180