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The Semantics of Sharpness & the Prohibition of the Pungent:

Garlic, Sanskrit *śigru*(*ka*)-, & Old Persian **θigra*(*ka*)-

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Abstract

This study proposes a new understanding of the semantics behind Sanskrit *śigru*-, which Lubotsky (2002) suggested is a loanword from Scythian related to Old Persian **θigra*(*ka*)- and Modern Persian *sīr* "garlic." Although *śigru*- has been assumed to refer to *Moringa oleifera* Lam. "drumstick tree," Meulenbeld (2009=2018) has shown that in Āyurvedic literature it is not exclusively used to denote moringa, but must have referred to various pungent, pro-*pitta* plants. Lubotsky proposed that what links *śigru*- (as moringa) to Iranian words for garlic is the idea of a sharp *shape*. However, given Meulenbeld's conclusions, enhanced by the survey of *śigru*- in non-Āyurvedic literature undertaken here, the author proposes that the connection is sharp *taste* rather than shape. The pungent connection is supported by the fact that Dharma texts forbid eating *śigru*- along with garlic and onions, as well as by semantic developments of the Sanskrit root *tij*-. Finally, the survey allows for some cultural explanations of the traditional garlic-and-onion prohibition.

Key Words

moringa, garlic, forbidden food, Indo-Iranian linguistics, Dharmaśāstra, Āyurveda

§1 Introduction

This article initially arose from a query from scientists[2] interested in ancient South Asian cultural references to the tree *Moringa oleifera* Lam. (common name "drumstick/horseradish tree" or simply "moringa"), which has attracted much attention worldwide for its uses in medicinal compounds and in human nutrition.[3] Moringa is most often identified with the Sanskrit word *śigru*-, which is indeed etymologically related to words for moringa in modern Indian

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[2] Mark Olson (Instituto de Biología, Universidad Nacional Autónoma de México), a specialist of the Moringaceae, contacted me through Arlo Griffiths, who had corresponded with him for moringa expertise when working on Griffiths 2004–2005. Olson is interested in the history of moringa cultivation, and when Susan Sterrett (Philosophy of Science, U. of Kansas in Wichita) contacted him, herself interested in the ethnobotany and co-evolution of moringa with humans, they thought it could be fruitful for both of them to reach out to someone familiar with ancient Indian textual sources. Olson at the same time brought in R. Geeta, recently retired from the Dept. of Botany at the University of Delhi, for her expertise. I thank them all for their advice, comments, and stimulating discussion on mismatches between different cultures' ways of categorizing food and of distinguishing between food and medicine.

I would like to thank Georges-Jean Pinault (EPHE Paris) for his comments on an early draft of this article. Many thanks are due to my anonymous reviewers who encouraged me to go further in my conclusions, and who gave useful suggestions on how to make the article more reader-friendly.

[3] For a critical review of health claims made about moringa, see Waterman *et al*. 2021.

languages.[4] However, Jan Meulenbeld's 2009=2018 monograph has shown that at least for ancient Āyurvedic sources, *śigru-* is in no way unequivocally used to denote moringa, but could be used to refer to various plants as long as they had the essential qualities of pungency and anti-*kapha* and anti-*vāta* but pro-*pitta* medicinal efficacy. The only word which might safely refer consistently to moringa in Sanskrit is *muraṅgī-*/*muruṅgī-* (CDIAL 10209), both loanwords based on Tamil *muruṅkai* (DEDR: 447) and its Dravidian relatives which are the source of the modern botanical name (Meulenbeld 2018: 92). In pre-modern Sanskrit literature, *muraṅgī-*/*muruṅgī-* are essentially restricted to Āyurvedic sources, starting with the *Suśrutasaṁhitā* (though they are not attested in the *Carakasaṁhitā*).[5] Meulenbeld's book exhaustively covers all these words in Āyurvedic literature.

Section §2 of this article, a survey of *śigru-* in non-Āyurvedic Sanskrit literature, shows that other contexts where *śigru-* appears do not give enough information either to warrant the idea that *śigru-* in each place refers to moringa (though it is not impossible). However, the survey does reveal one very clear theme concerning *śigru-*, whatever plant it might refer to exactly in each occurrence: it is often found grouped with onion, garlic, mustard, radish, etc. This fact, combined with what *can* be said about the word *śigru-* based on Meulenbeld's findings, i.e. that it refers to pungent plants, has repercussions for the semantics of *śigru-* and perhaps for its history as a loanword from Iranian (Lubotsky 2002). This semantic question will be discussed in the §3 conclusions. In final section §4, the material presented in the survey (§2) will be drawn upon to explore the historical background of cultural associations that might explain the well-known prohibition against twice-borns or Brahmins consuming pungent vegetables like garlic and onions.

An Appendix at the end of the article gives a table presenting a chronological synopsis of the sources mentioning *śigru-* used in the paper.

§2 Survey of *śigru-* in Sanskrit literature

The following survey (§2.1–5) of *śigru-* in Sanskrit (and some Pāli and Prākrit) literature is organized by genre, and the order is not chronological: first come the genres (grammar, poetry) whose stray references do not give much information about *śigru-*, and after that the genres which give more information and allow for a consistent trend to be discerned (Vedic, Dharma, Artha, Āyurveda).

§2.1 shows that the earliest Sanskrit grammatical treatises identified *śigru-* as a word for a plant that produced fruits (in the botanical sense); this is obviously not enough to identify the plant the grammarians had in mind. **§2.2** goes over the rare attestations of the word *śigru-* in literary texts (Epic, Kāvya, Buddhist), both in Sanskrit and in its cognate forms in some other Indo-Aryan languages, and shows that this plant was figured as a cultivated garden tree, graceful with its springtime flowers. The description could fit moringa as well as many other trees. **§2.3** presents the somewhat more intriguing attestations of *śigru-* in Vedic literature and in later texts describing hostile ritual, both from the Atharvavedic and Tantric traditions. Associations are

[4] Tandon 2017: 479 gives an extensive list of names of *M. oleifera* in Indian languages: "Assam.: Saijna, Sohjna; Ben.: Sajna, Sajina, Sojna; Eng.: Drumstick Tree, Horseradish Tree; Guj.: Sokto, Suragavo, Midhosaragavo, Saragavo; Hind.: Mungna, Sainjna, Soanjana, Sahinjan, Soanjna, Shajnah, Segve, Shevga, Shajna; Kan.: Nugge; Kon.: Mashinga-jhad; Mal.: Murinna, Murunna, Sigru, Moringa; Mar.: Achajhada, Shegat, Murungamul, Munagacha-jhad, Shevge, Sanga, Sujna, Shevgi; Ori.: Sajina, Munigha; Punj.: Sainjna, Soanjna, Sanjna, Sohanjana; Tam.: Murungai; Tel.: Mulaga, Munaga, Sajana, Tellamunaga." See also EWAia: 635, KEWA: 334, CDIAL 12437.

[5] See Meulenbeld 1999–2002 (IA: 355 and corresponding note 598 in IB: 456).

found with arrows, blood, red resin, and garlic, which will in turn connect with the Dharma and Āyurveda texts (§2.4–5). None of these attestations of *śigru-* occur with details sufficient to identify the plant as moringa, though moringa's sap does indeed resemble coagulating blood when oozing from a wound in the tree bark. The few details mentioned might suggest a cultivated tree. **§2.4** documents the prohibition against *śigru-* is regularly banned for consumption in Dharma texts along with garlic and other pungent foods, as well as tree resins which are mythically related to the blood of Brahmin murder. This is reminiscent of the discussion of the moringa tree's blood-like sap in §2.3, but now the association of *śigru-* with pungency will start to dominate, leading into the treatment in the Āyurvedic sources. **§2.5** shows how Arthaśāstra and Āyurveda mirror the association of *śigru-* with garlic that was found in the Dharma texts, and documents the constant grouping of pungent vegetables and the descriptions of their heating, aphrodisiac properties. Again, the Āyurvedic description fits the botanical description of moringa in terms of pungency, but Meulenbeld (2009=2018) has shown there to be too many contradictions concerning other properties of the plant to warrant identification.

§2.1 Grammar treatises: *śigru*-fruits

Some evidence concerning *śigru-* can be found in ancient grammatical works. Pāṇini's (500 B.C.E[6]) *Aṣṭādhyāyī* 4.3.163–4 concerns the derivation of fruit names from the names of the plants from which they grow, and *śigru-* is given in the *Gaṇapāṭha* as one of the plant names to which applies the rule 4.3.164.[7] This derivation gives the word *śaigrava-* as meaning "śigru-fruit." However, *śigru-* also appears in the *Gaṇapāṭha* in lists of words to which apply rules for forming patronymics,[8] suggesting *śigru-* as a proper name for a person, rather than a plant name.

§2.2 Epic, Kāvya, and Buddhist literature: spring flowers and garden plants

śigru- does not appear to be attested in the epics (*Mahābhārata* or *Rāmāyaṇa*). As for Kāvya, Bāṇa's *Harṣacarita* (7th century) mentions *śigru-* at the end of the seventh chapter in a list of plants in the gardens of householders living on the outskirts of the Vindhya forest (on the Malwa Plateau side).[9] This also seems to be the only attestation of *śigru-* and of its frequent equivalent in Classical Sanskrit, *śobhāñjana*(*ka*)- in Sanskrit Kāvya, which is perhaps surprising given that Rājaśekhara's poetical treatise, the *Kāvyamīmāṁsā* (end of 9th–beginning of 10th century C.E.; cf. Kane 1971: 216) mentions the *śobhāñjanaka-* as a staple springtime flowering plant in the 18th chapter on seasonal descriptions (ed. Dalal & Sastry 1934: 105, lines 19–22):

> *rohītakāmrātakakiṅkirātā madhūkamocāḥ saha mādhavībhiḥ* |
> *jayanti śobhāñjanakaś ca śākhī sakesaraḥ puṣpabharair vasante* || 55 ||
> "*Rohītaka*, spondias, *aśoka*, *madhūka*, bananiers, avec les jasmins, l'arbre moringa et les acacias — ils triomphent au printemps sous leur faix de fleurs" (tr. Stchoupak & Renou 1946:275).

Rājaśekhara himself does follow his own advice in that he uses *sohañjaṇa-*, the Prakrit equivalent of *śobhāñjana-*, in his play *Bālarāmāyaṇa*: at 5.32 (ed. Govindadeva Śāstri 1869: 130) the spring season (*vasanto*) is described as having "*sohañjana* trees full of blooming flowers" (*bhaggakusumidasohañjaṇasāhī*; translated in Sanskrit as *bhagna-kusumita-śobhāñjana-śākhī*).

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[6] Cardona 1997: 1, 3.

[7] See Renou 1966: 385 and Böhtlingk 1887: 205; and for the *Gaṇapāṭha*, Böhtlingk 1887: 126*, °157 *plakṣādayaḥ*.

[8] For the *Gaṇapāṭha*, see Böhtlingk 1887: 111*, °79 *gopavanādayaḥ*; 127*, °164 *bidādayaḥ*. The rules are *Aṣṭādhyāyī* 2.4.67 and 4.1.104; see Renou 1966: 143, 306 and Böhtlingk 1887:72, 161.

[9] Ed. Parab 1918: 228. For a translation of the relevant passage see Cowell & Thomas 1897: 225–9.

As for Middle-Indo-Aryan developments of *śigru-*, we can note that *siggu-* does appear in the Buddhist *Jātaka*s,[10] but without a particular description of the tree which would help to identify it as moringa. They do indicate that *śigru-* was cultivated. The following citations are from the edition of Fausbøll 1877–96: 3.161 *laṭṭhīva sobhañjanakassa uggatā* "Lithe as a shoot of fair moringa tree" (trans. Francis & Neil in Cowell 1897: 107), where the commentary glosses *siggurukkhassa*; in 5.406 we find *sobhañjanā ti siggurukkhā* in a long list of garden plants left untranslated (Cowell 1905: 215, note 3); similarly in 6.535, a long list of garden plants left untranslated: see Cowell 1907: 278, note 1). See also Rhys Davids & Stede 1925=1952: 168, 185.

§2.3 Vedic sources and later ritual texts: arrow warfare and killing rites

It is important to note here that from a botanical-historical point of view, it is perfectly plausible that the tree *Moringa oleifera* Lam. could have been known from the Vedic period onwards in what is now northern India. Since colonial times, botanists regard the species as native and wild in northwestern and northern central India.[11] However, it has been established through field exploration and study that "there is so far evidence for wild strands of what is currently regarded as *Moringa oleifera* only in hilly lowlands of northwestern India."[12] *śigru-* as the name of a tree[13] is attested for the first time in the *Paippalādasaṁhitā* of the Atharvaveda, which was probably compiled in the territory of the fledgling Kuru state of about 1000 B.C.E. in eastern Punjab/Haryana,[14] just below the Shivalik hills which are home to the kind of subtropical deciduous forests in which wild trees currently regarded as wild *M. oleifera* have been identified.[15] The passage has been analyzed by Griffiths (2004–2005). I will reproduce only the two lines concerning *śigru-* here, in their edition and translation by Griffiths:

> *Paippalādasaṁhitā* 20.61.8cd
> *tatra lohitavr̥kṣo jātaḥ śigruḥ kṣiptabheṣajaḥ* ||
> "There the red tree is born, the Śigru which is the cure for what has been struck (sc. by Rudra's arrows)."

> *Paippalādasaṁhitā* 20.61.10
> *kr̥ṣyām anyo vi rohati girer anyo 'dhi pakṣasi* |
> *trātārau śaśvatām imāv ā gantāṁ śigrutumburū* ||

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[10] The *Jātaka*s are popular stories which must have originated in the centuries prior to the Common Era; they have some parallels in the Sanskrit epics (see von Hinüber 1996: 54–8).

[11] I thank Mark Olson for references to the following relevant papers on this point: Qaiser 1973, Verdcourt 1985, & Pandey *et al*. 2011.

[12] For a precise overview of this plant's characteristics, the history of its scientific names and of its export out of India to other continents, and other details, see Olson 2017. Quote from page 20.

[13] It is well known that the earliest attestation of Sanskrit *śígru-* (with accent) in the *R̥ksaṁhitā* does not give any clues as to the nature of the plant, if it is indeed the same word at all, since it clearly denotes the name of a people in the context:

> *R̥ksaṁhitā* 7.18.19cd (ed. Aufrecht 1877 (II): 15)
> *ajā́sas ca śígravo yákṣavaś ca balíṁ śīrṣā́ṇi jabhrur áśvyāni* ||
> "And the Ajas, the Śigrus, and the Yakṣus brought horses' heads as tribute" (my translation).

[14] See Witzel 1997:278–9 for the emergence of the Atharvaveda's hymn collections in this context, as well as Witzel 2003:25 and 2009:290 for further details on dating. See Witzel 1995 for the historical development of the Kuru state centered in "Kurukṣetra," about a hundred miles northwest of Delhi between the rivers today called Sarsuti and Choutang in Haryana. Iron, known to the Atharvaveda but not to the R̥gveda, was introduced to this area around 1200 B.C.E. (Witzel 1997: 280–281).

[15] Olson 2017:21.

> "The one grows wide[16] in the field, the other on the flank of a mountain. Let these two saviors of many, Śigru and Tumburu,[17] come here."

As Griffiths noted (2004–2005: 254), it is not botanically clear in what way the moringa could be characteristically red. He appends to the beginning of his article the possible solution of separating *lohita* as a vocative and reading *tatra lohita vṛkṣo jātaḥ* "There, O red one (=Rudra?), the tree is born…" However, I might elaborate on another solution briefly referred to by Griffiths, based on information he received from Mark Olson: Olson notes that the moringa bark does ooze coppery gum when damaged. This would make a rather compelling parallel image for the blood oozing from an arrow wound.[18] Given medical ritual's common technique of using partial similarities to underscore the pertinence of the operation, this could be the reason that the tree is here called "red" (the word *lohita-* is used to describe the color of blood as well as of copper in Vedic Sanskrit; see the passages in Rau 1973: 20–25). If the *śigru-* here is indeed *M. oleifera*, the reference to it growing in the field suggests it to be a semi-cultivated plant for the composer of this hymn, or at any rate not a tree that is only found in forests. However, there is really not enough evidence in this passage to be sure that *śigru-* refers to moringa.

As Griffiths notes, the only other Vedic attestations of *śigru-* occur in the *Kauśikasūtra*, the oldest ritual manual of the Atharvaveda: in 29.23, a rite to cure a child of worms, butter is mixed to make a salve with a plural *śigrubhiḥ* "with śigrus," but it is not specified what part of the plant is meant. The plural might refer to the seeds in accordance with the usage described by Meulenbeld (2009=2018: 15) in the *Carakasaṁhitā*. Mark Olson informs me that all the species of moringa in northeast Africa are used by locals precisely for curing worms in both humans and animals; however, this is not enough to be sure that *śigru-* here is without a doubt moringa, as various plants could have been used against worms. In *Kauśikasūtra* 38.5, a rite to repel a storm, *śigruśarkarāḥ* are offered into the fire, but it is not certain if the śigru's *śarkarā*-s are its leaves or something else (Griffiths 2004–2005: 255, note 15).

No other attestations are found among what are considered strictly "Vedic" sources. If we look at the Vedāṅga (Vedic appendices) volumes of Vishva Bandhu's Concordance (1961:2393), *śigru-* appears a number of times in post-Vedic sources of the Atharvavedic tradition. *Atharvaveda Pariśiṣṭa* 26.5.3, in which *śigru-* designates one of several woods useful in a rite for eradicating enemies, was cited by Griffiths (2004–2005: 255, note 16). In *Atharvaveda Śāntikalpa* 20.5 (ed. Bolling 1904:106), there is an oblation involving *śigru-:*

> *śigruṁ hutvā jalaṁ caiva guggulumṁ viṣam eva ca* ||
> "Having poured an oblation of śigru, water, bdellium, and poison…" (my translation).

The substance denoted by Sanskrit *guggulu-* "bdellium" can be the aromatic, reddish-brown flammable resin from a number of trees, including even moringa (see Potts, Parpola *et al*. 1996: 294, 296; CDIAL 4215); more importantly, it has the same Āyurvedic properties as *śigru-* (see

[16] In response to a question by botanist Mark Olson: "wide" is how Griffiths translated the pre-verb *vi* which modifies the action of growing, and which could mean two things: one, that *śigru* grows here and there, in various spots, or two, that the *śigru* tree itself branches out in many directions; I consider the first interpretation more probable in the context.

[17] *tumburu-*: here probably a species of *Zanthoxylum* according to Griffiths' investigation (2004–5: 256–7); it is interesting that the botanical sources quoted by Griffiths describe parts of *Zanthoxylum acanthopodium*, found in Himalayan valleys, as having a pungent taste.

[18] Thanks to Mark Olson who confirmed the verisimilitude of this imagery by sharing photos of cut moringa trees oozing their reddish sap.

Meulenbeld 2009=2018: 9). Sāyaṇa cites this passage from the *Śāntikalpa* at the end of his commentary on ŚS 4.37, an Atharvaveda hymn against enemies.[19] Sāyaṇa makes it the first half of a stanza, the second half of which is a line that in Bolling's edition is the beginning of the following section, 21.1. This line starts by mentioning *pippalī-*, the "long pepper" which will also be found with *śigru-* in Āyurvedic lists and has, in its dried state, the same pungent and hot (*kaṭu* and *uṣṇa*), anti-*kapha*/*vāta* qualities as *śigru-* (Meulenbeld 2009=2018: 35, note 11).

In light of these hostile ritual practices from the Atharvan tradition, it is interesting that the *Vīṇāśikhatantra*, a Śaiva text recorded in a Nepalese manuscript from the 12–13th century C.E. whose author was particularly interested in "magical practices" (Goudriaan 1985: 6, 38–40), also uses *śigru-* in rites for harming and killing enemies:

> *puruṣasya bhaved devi uddhatasya yaśasvini* |
> *kākamāṁsaṁ gṛhītvā tu nimbatailasamāyutam* || 197 ||
> *śmaśānāgniṁ samādhāya śigrukāṣṭhena sādhayet* |
> *juhuyāt saptarātraṁ tu yasya nāmnā tu sādhakaḥ* || 198 ||
> *vidviṣṭo dṛśyate loke eṣa vidveṣaṇaṁ param* |
> *ato 'nyat sampravakṣyāmi rahasyam idam adbhutam* || 199 ||
> "197. The same is also applicable to a haughty man, O Illustrious One. Take the flesh of a crow in combination with the sap (?) of a *nimba* tree, 198. procure a fire from a cremation ground and kindle it with fuel from a *śigru* tree; the person with whose name one sacrifices during seven nights 199. is observed to be hated among the people; this is an excellent method of creating dissension" (ed. tr. Goudriaan 1985: 75, 118).
> *svaśoṇitāktaṁ laśunaṁ māraṇe pratihomayet* |
> *uccātane kākapakṣaṁ vaśye jātiṁ tu homayet* || 231 ||
> *vidveṣe śleṣa śigruṁ ca homayed avicāraṇāt* |
> *ākarṣaṇe bakulapuṣpaṁ homayec ca vicakṣaṇaḥ* || 232 ||
> "231. One should sacrifice during ceremonies of liquidation garlic sprinkled with one's own blood; crows' feather during liquidation, and jasmine during subjugation. 232. During a rite of dissension one should sacrifice *śleṣmātaka* (?) and *śigru* flowers without hesitation; and the wise man should sacrifice mimosa flowers during attraction" (ed. tr. Goudriaan 1985: 77, 121; see also page 40 for context).

Goudriaan suggests the word "*śleṣa*" in the text refers to the *śleṣmātaka* plant, which we will see is forbidden along with *śigru-* in Dharma texts.

§2.4 Dharma literature: forbidden vegetables and bloody resins

A distinct trend develops in Sanskrit Dharma literature with regard to *śigru-*: it is consistently mentioned in lists of forbidden foods[20] for the "twice-born," that is for Brahmins, or for anyone from the three non-servant classes in certain contexts. In a perhaps meaningless but nonetheless curious parallel to the "red tree" of the Paippalāda passage, *śigru-* is listed along with red (*lohita*) exudations from wounded trees in one such list of forbidden foods from the

[19] See in Pandit 1895: 705.

[20] The "forbidden foods" or *abhakṣya* category is analyzed in Olivelle 2002; see p. 346: "*Abhaksya* refers to items of food, both animals and vegetables, that are completely forbidden; they cannot be eaten except under the most dire circumstances. Generally, these lists refer to food sources rather than cooked food served at a meal. Thus, carnivorous animals, web-footed birds, garlic, red resins of trees are all *abhaksya*. I translate *abhaksya* as 'forbidden food'."

traditional normative treatise *Yājñavalkyasmṛti* (4th–5th century C.E. according to Olivelle 2019: xiv):

> *Yājñavalkyasmṛti* 1.171 (ed. Olivelle 2019: 54):
> *devatārthaṁ haviḥ śigruṁ lohitāvraścanāni ca* |
> *anupākṛtamāṁsāni viḍjāni kavakāni ca* ||
> "[He should avoid] the oblation destined for the gods, śigru,[21] also red [sap from] cutting down [trees],[22] unconsecrated meat, what grows on feces, and mushrooms" (my translation).

This stanza from the *Yājñavalkyasmṛti* reads like a condensation[23] of a similar passage from a slightly older[24] normative treatise, *Manusmṛti* 5.5–7, in which *śigru-* is not mentioned but red tree-sap is, along with garlic and onions,[25] again as banned food:

> *Manusmṛti* 5.5–7 (Olivelle 2005: 558–9)
> *laśunaṁ gṛñjanaṁ caiva palāṇḍuṁ kavakāni ca* |
> *abhakṣyāṇi dvijātīnām amedhyaprabhavāṇi ca* || 5 ||
> *lohitān vṛkṣaniryāsān vraścanaprabhavāṁs tathā* |
> *śeluṁ gavyaṁ ca pīyuṣaṁ prayatnena vivarjayet* || 6 ||
> *vṛthā kṛsarasaṁyāvaṁ pāyasāpūpam eva ca* |
> *anupākṛtamāṁsāni devānnāni havīṁṣi ca* || 7 ||
> "Garlic, leeks, onions, and mushrooms are foods forbidden to twice-born persons; and so is anything growing in an impure medium. He should scrupulously eschew the following: the red sap of trees; juices flowing from incisions on trees;[26] Śelu-fruit; cow's colostrum; Kṛsara-porridge; Saṁyāva cake; milk-rice; or cake prepared for no good reason; meat of an unconsecrated animal; food offered to deities; and sacrificial oblations" (tr. Olivelle 2005:138).

The *Manusmṛti* does forbid *śigru(ka)-* in another context, that of the lifestyle of the ascetic forest hermit in his old age:

> *Manusmṛti* 6.14 (ed. Olivelle 2005: 596)

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[21] The "*Mitākṣarā*" commentary here glosses *śigru-* as *sobhāñjana-* (Gharpure 1936: 382) = *śobhāñjana-*.

[22] Olivelle notes (2019: 306) that the "Vulgate" has a different reading, that is, *lohitān vraścanāṁs tathā* in Āchārya's edition (1949: 57). Olivelle cites the usage of *āvraścana-* "tree stump" in *Taittirīyasaṁhitā* 2.5.1.4 (reproduced below), and therefore seems to understand in his edition a *dvandva* compound of *lohita-* "red [tree sap]" + *āvraścana-* "tree stump;" he translates (p. 55) "An offering meant for a deity; *śigru* horseradish; red sap of trees; growths on tree stumps; meat of an unconsecrated animal; what grows in excrement; mushrooms". He notes (2019: 306) his change of view concerning the parallel passage from *Manusmṛti* 5.5–7 (see note 26).

[23] See other examples of Yājñavalkya's tendency to condense the *Manusmṛti* in Olivelle 2005: 67.

[24] The *Manusmṛti* dates to around the 3rd century C.E. according to Olivelle 2005: 66; the date is pushed back to the 2nd century in Olivelle 2019: vii.

[25] As for Yājñavalkya's text, it touches on the avoidance of onions and garlic, along with village chicken and pork, at 1.175.

[26] Now (Olivelle 2019: 323), Olivelle would be inclined to take Manu's *vraścanaprabhava-* differently: "The reference [in Yajñyavalkya, C.S.] appears to be to growths such as mushrooms growing on tree stumps. The parallel at MDh 5.6 (*vraścanaprabhava*) probably also refers to these growths rather than to 'juices flowing from incisions on trees'." I don't quite follow Olivelle in eschewing the single idea of sap coming from cut trees in favor of two ideas, sap and mushrooms growing on trees, as nothing from the Taittirīya legend supports the introduction of mushrooms into the picture, and mushrooms have been separately censured in both Manu and Yajñyavalkya so there is no reason for further reference to them. See also the "*Mitākṣarā*" commentary on the Yajñyavalkya passage (Gharpure 1936: 382); I would say the traditional commentators had the right idea.

varjayen madhu māṁsāni bhaumāni kavakāni ca |
bhūstṛṇaṁ śigrukaṁ caiva śleśmātakaphalāni ca ||
"He must avoid honey, meat, the Bhauma plant, mushrooms, the Bhūstṛṇa plant, the Śigruka horseradish, and the Śleṣmātaka fruit" (tr. Olivelle 2005: 148–9).

In passing, Medhātithi comments on this passage: "The words *bhūstṛṇa* and *śigruka* are the names of two types of vegetables well-known among the Vāhīkas" (*bhūstṛṇaśigrukaśabdau śākaviśeṣavacanau vāhīkeṣu prasiddhau*; ed. Jhā 1932: 501); in the same vein, the commentator Kullūka notes that " *śigruka* is a vegetable well-known among the Vāhīkas" (*śigrukaṁ vāhīkeṣu prasiddhaṁ śākam*; ed. Shastri 1983: 218): the name "Vāhīkas" ("outsiders") in this context might refer to a scorned people of Punjab (Witzel 1987: 202, note 100; Witzel 1997: 304; Parpola 2015: 216). It is interesting that both *bhūstṛṇa-* and *śigru-* are listed together in Vāgbhaṭa's *Aṣṭāṅgahṛdaya*[27] as plants that are considered "burning, acrid, astringent, hot, savoury, stimulating digestion."[28]

In *Vaikhānasadharma*-(or -*smārta*-)*sūtra* 10.5 (4th century C.E.; cf. Colas 1996: 22–3), the ascetic renouncer should avoid eating *śigru-* along with onions, tree-sap, and some other plants (see Caland 1929: 218).[29]

The rule against red tree sap is old, for the *Taittirīyasaṁhitā* (beginning of the 1st millennium B.C.E.) equates this substance with blood and forbids its consumption after telling a legend about how god Indra sold to the trees a part of his guilt for having killed the Brahmin Viśvarūpa:

Taittirīyasaṁhitā 2.5.1.4 (ed. Weber 1871: 201):
tṛ́tīyam brahmahatyā́yai práty agṛhṇant sá niryāsò 'bhavat tásmān niryāsásya nā́śyàm brahmahatyā́yai hy èṣá várṇó 'tho khálu yá evá lóhito yó vāvráścanān niryéṣati tásya nā́śyàm ||4||
"They [the trees] took a third part of his Brahmin-murder, it became sap; therefore one should not partake of sap, for it is the color of Brahmin-murder. Or rather of the sap which is red or which comes from the cutting [the tree] one should not partake, but of other sap at will" (my modified translation from Keith 1914: 189).[30]

Note the recurring set of vocabulary found in the Dharma texts cited in this section: *lóhita-* "red", *niryāsá-* "sap," *āvráścana-* "cutting."

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[27] The *Aṣṭāṅgahṛdaya*, widely influential in Āyurveda from the moment it appeared and translated widely in neighboring countries already in ancient times, can be dated to about 600 C.E., but the history is complex and a longer work called the *Aṣṭāṅgasaṁgraha*, possibly by the same author, further complicates the issue (see the long discussion in Meulenbeld 1999–2002 IA: 597–656).

[28] *Aṣṭāṅgahṛdaya Sūtrasthāna* 6.106–7 (ed. Kuṁṭe *et al*. 1939: 208):
kuṭhera-śigru-surasa-sumukhāsuri-bhūstṛṇam |
phaṇijjārjaka-jambīra-prabhṛti grāhi śālanam ||
vidāhi kaṭu rūkṣoṣṇaṁ hṛdyaṁ dīpanarocanam |
dṛkśukrakṛmihṛttīkṣṇaṁ doṣotkleśakaraṁ laghu ||

[29] Caland glosses *śigru-* as "horse-radish tree," and further glosses another plant in the same list, *mūlaka-*, as "*Moringa pterygosperma*" (on this spurious name, see note 41). However, there is no particular consensus that this word refers to moringa: *mūlaka-*, a derivative of *mūla-* "root," can mean "radish," as well as denote many generic root-like objects or even serve as an adjective in a compound meaning "rooted in X." On the other hand, *mūlaka-* could be reflected in *mulaga*, one of the Telugu words for moringa cited above in the list of names from Tandon 2017 (see note 5).

[30] Keith translates "guilt" instead of my literal "Brahmin-murder," and "pruning" instead of my "cutting [the tree]."

On one hand, the placement of *śigru-* in the list from the *Yājñavalkyasmṛti* could suggest it is connected to the question of tree sap in light of the *Paippalāda* passage cited above. On the other hand, older versions of this list of forbidden foods leave out *śigru-*, such as *Gautamadharmasūtra* 17.32–33 (mid 3rd century B.C.E.; see Olivelle 1999: xxxii–xxxiii):

> *kisalaya-kyāku-laśuna-niryāsāḥ | lohitā vraścanāś ca |* (ed. Stenzler 1876: 23)
> "young shoots; mushrooms; garlic; resins; red juices flowing from incisions on trees" (tr. Olivelle 1999:109).

Vasiṣṭhadharmasūtra 14.33 (1st century C.E.; see Olivelle 1999: xxxiii) echoes Gautama:

> *laśuna-palāṇḍu-kyāku-gṛñjana-śleṣmāntaka-vṛkṣaniryāsa-lohitavraścanaś*(*ḥ*) (ed. Führer 1883:42)
> "garlic, onions, mushrooms, Gṛnjana onions, Śleṣmāntaka fruits, tree resins, or red juices flowing from incisions on tree barks" (tr. Olivelle 1999: 287).

It should be noted that there are two other extant Dharmasūtras, Āpastamba's and Baudhāyana's, from about the same period as Gautama, which of all the elements in this list only mention garlic and onions as forbidden. Garlic and onions are therefore at the heart of this thread of the normative tradition,[31] and the addition of *śigru-* in some sources might have more to do with its similarity to these pungent vegetables than to its relation to tree sap. Indeed, *śigru-* is to be avoided along with garlic, mushrooms, sour milk products, sheep's milk and others, omitting tree-sap, in the *Viṣṇusaṁhitā* (probably composed in Kerala sometime before the 15th century C.E.).[32]

§2.5 Arthaśāstra and Āyurveda: pungency, *pitta*, and aphrodisiacs

Moringa products are still today prohibited for consumption along with onions and garlic for Vedic students in at least some traditional Gurukula schools on the grounds that the three are aphrodisiacs (Vedic students are sworn to celibacy for the duration of their studies). [33] The idea of garlic (*laśuna-/raśuna-*, sometimes with sibilant *-s-* instead of the palatal), as well as onion (*palāṇḍu-*), as being potent aphrodisiacs (*vṛṣyaḥ*), linked with their hot, sharp, and pungent flavor

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[31] Many people in India today do not eat these besides being vegetarian as well. See Kane 1941 II.2: 771 on the theme of forbidding garlic and onion in Hindu tradition; these restrictions do not apply to the servant classes (Kane 1941 II.1: 158).

[32] On the dating see Ganapati Shastri 1992: 9–11. The passage in question is *Viṣṇusaṁhitā* 29.16 (ed. Ganapati Shastri 1992: 233):

> *śārṅgāṣṭhaṁ laśunaṁ śigru dhānyāmlaṁ cāvikaṁ payaḥ |*
> *piṇyākaṁ koradūṣaṁ ca chatrākaṁ varjayet sadā* || 16 ||

[33] Thanks to Vinoth Murali (French Institute of Pondicherry), a Śrīvaiṣṇava Brahmin who attended Gurukula school in Tamil Nadu in which he learned to recite the *Taittirīyasaṁhitā*, for this information from his personal experience. In Tamil culture generally, moringa (specifically, its long immature fruits) is considered an aphrodisiac, and many humoristic references to this can be found in Tamil cinema. There is a treatise in Tamil attributed to Vedānta Deśika, an important figure for Śrīvaiṣṇavism, called *Āhāraniyamam* which contains lists of forbidden foods similar to those found in Sanskrit Dharma works, including onions (Tamil *uḷḷi*: "onion, garlic." "a generic name for onion or garlic" DEDR: 69) and two types of moringa, *puṉamuruṅkai* and *muruṅkai*. See Srinivasan 2000 for references to *Āhāraniyamam* and to Śrīvaiṣṇava dietary practices, from the point of view of a devotee, not free from various biased and sometimes objectionable statements. Srinivasan cites an edition of the *Āhāraniyamam* which I have not been able to locate; nor have I been able to find any strictly scientific literature on this treatise which is possibly quite modern, nor any edition besides the PDF prepared by a Śrīvaiṣṇava priest by the name of Srī Varadachari Sathakopan and made available on his website, https://sadagopan.org.

profile, is confirmed in the oldest sources of the Āyurvedic medical tradition.[34] Although *śigru-* is described as harming virility in some Āyurvedic sources (Meulenbeld 2009=2018: 65, 67–8), its main Āyurvedic qualities link it to garlic, onion, and other pungent vegetable substances. The plant(s) bearing the name *śigru-* are anti-*vāta* and -*kapha* but pro-*pitta,* and have *kaṭu* (pungent) taste (Meulenbeld 2009=2018: 11, 23, etc.). Indeed *śigru-* is regularly listed with onion, garlic etc. in Āyurvedic lists. For example:

Suśrutasaṁhitā Uttaratantra 21.17 (ed. J.T. Āchārya & N.R. Āchārya 1945: 802):

> *laśunārdrakaśigrūṇāṁ muraṅgyā mūlakasya ca* ||
> *kadalyāḥ svarasaḥ śreṣṭhaḥ kaduṣṇaḥ karṇapūraṇe* || 17 ||
> *śṛṅgaverarasaḥ kṣaudraṁ saindhavaṁ tailam eva ca* |
> *kaduṣṇaṁ karṇayor deyam etad vā vedanāpaham* || 18 ||
> "Lukewarm juice of *laśuna* [garlic, C.S], *ārdraka* [ginger, C.S], *śigru*, *muraṅgī* (another type of *śigru*), *mūlaka* [radish, C.S.] and *kadalī* is useful for filling the ear. Or juice of fresh ginger, honey, rocksalt, and oil mixed together and warm should be instilled into ears. This removes pain" (tr. Sharma 2001: 240–1).[35]

śigru- is classified in *Suśrutasaṁhitā Sūtrasthāna* 46.221 in the category "*śāka-vargaḥ,*" which includes types of pepper (*pippalī-* and *marica-*), mustard (*sarṣapa-*), radish (*mūlaka-*), garlic (*laśuna-*), onion (*palāṇḍu-*), etc. The description of plants of the *śāka-vargaḥ* serving to "perfect" food is summed up in the following stanza, 46.222 (ed. J.T. Āchārya & R.N. Āchārya 1945: 229):

> *kaṭūny uṣṇāni rucyāni vātaśleṣmaharāṇi ca* ||
> *kṛtānneṣūpayujyante saṁskārārtham anekadhā* || 222 ||

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[34] *Carakasaṁhitā Sūtrasthāna* 27.175–6 devotes a stanza each to the aphrodisiacs onion and garlic (ed. J.T. Āchārya 1941: 162):

> śleṣmalo mārutaghnaś ca palāṇḍur na ca pittanut |
> āhārayogī balyaś ca **gurur vṛṣyo** 'tha rocanaḥ || 175 ||
> krimikuṣṭhakilāsaghno vātaghno gulmanāśanaḥ |
> snigdhaś coṣṇaś ca vṛṣyaś ca laśunaḥ kaṭuko guruḥ || 176 ||

See also Vāgbhaṭa's *Aṣṭāṅgahṛdaya Sūtrasthāna* 6.109cd–110 (ed. Kuṁṭe *et al*. 1939:109)

> laśuno bhṛśatīkṣṇoṣṇaḥ kaṭupākarasaḥ saraḥ || 109 ||
> hṛdyaḥ keśyo **gurur vṛṣyaḥ** snigdho rocanadīpanaḥ |
> bhagnasandhānakṛd balyo raktapittapradūṣaṇaḥ || 110 ||
> "…it is very sharply hot and has a pungent savour. It is penetrating, cordial, it helps one's hair grow, and it is a powerful aphrodisiac. It is smooth, appetizing, and a digestive. It helps fractures to heal up, it increases strength, and it inflames blood and bile." (tr. Wujastyk 2003: 152).

See further the "garlic treatise" of the Bower Manuscript, 2nd leaf obverse, line 14 (ed. Hoernle 1893: 2): (*raśuno*) *vīryeṇa coṣṇaḥ prathitaś ca vṛṣyaḥ* "with regard to its power, it is hot, and it is famed as an aphrodisiac" (tr. Hoernle 1893: 12). On the same leaf it is explained that *raśuna-* is the correct word but that many people say *laśuna-*. See also Wujastyk (2003: 147–160) for an introduction to the Bower Manuscript and a translation of the garlic treatise based on Hoernle's edition. The treatise also provides a work-around for Brahmins for whom garlic is forbidden by suggesting they feed it to a cow and then drink the cow's milk to reap garlic's disease-reducing benefits in this purified format (Wujastyk 2003: 159). The Bower Manuscript is dated to the 6th century; see Wujastyk 2003: 149 for references to the work done by Hoernle, Dani, and Sander to date the manuscript, as well as Meulenbeld 1999–2002 IIA: 11–12.

[35] This seems to have been a popular earache remedy, as it is repeated in *Aṣṭāṅgahṛdaya Uttarasthāna* 18.12 (ed. Kuṁṭe *et al*. 1939: 838), and in several Purānas: *Agnipurāṇa* 282.8 (ed. Mitra 1879: 44) and *Garuḍapurāṇa* 1.171.49 (ed. Pandey 2005: 249).

> "They are pungent, hot, appetizing, and remove wind and phlegm. They are added to prepared foods in various ways to perfect them" (my translation; see also Sharma 1999: 505).

In the *Carakasaṁhitā, Sūtrasthāna* 27.170 places *śigru-* along with pepper, ginger, garlic, and onions (named in subsequent stanzas) in the *harita-vargaḥ* "greens category," which resembles the *śāka-vargaḥ* of the *Suśrutasaṁhitā* in that it is made up of pungent and flavorful plants exciting *pitta* or bile.[36]

The Āyurvedic qualities of *śigru* may refer to the oil obtained from its seeds. Often only the word *śigru-* is mentioned, but when a part of the plant is specified, it is usually the seeds in the *Carakasaṁhitā* (Meulenbeld 2009=2018: 15). *śigru* seed-oil is described as *tīkṣṇa* and *kaṭu*, anti-*vāta* and anti-*kapha* in the *Suśrutasaṁhitā* (Meulenbeld 2009=2018: 23), and the *Aṣṭāṅgasaṁgraha* includes *śigru*-seed oil in a list of oils that are *tīkṣṇa*, *kaṭu*, and pro-*pitta* (Meulenbeld 2009=2018: 26).

Virtually all parts of moringa are indeed pungent when raw, and it seems that at one time the raw grated young root was used for horseradish-like preparations—at least this is why the English gave moringa the name "horseradish tree" (Ainslie 1826: 175; Yule & Burnell 1903: 426–7). Horseradish and moringa both contain glucosinolates which contribute to their pungency (like many of the plants which are associated with them in Sanskrit literature).[37] However, the host of inconsistencies and impossibilities which Meulenbeld has documented concerning the description of *śigru-* in Āyurvedic sources and commentaries precludes any certainty about its identification as moringa. I quote from his conclusion (Meulenbeld 2009=2018: 92–93):

> "An examination of the Sanskrit names of a small group of trees commonly believed to belong to the genus *Moringa* Adans. (Moringaceae) leads, when restricted to the occurrences of these names in the classical medical treatises, to the conclusion that none of them can with certainty be assigned to one of the two species indigenous to India… The most common names for an Indian *Moringa*, śigru and śobhāṅjana, have no link with the outward appearance"; p. 93: "Numerous problems are raised by these texts. Some kinds of śigru- described in them cannot possibly be members of the genus *Moringa*. The names nīlaśigru and kṛṣṇaśigru belong to this category. It remains therefore to be seen which trees were regarded to constitute the 'śigru group.' Members of other genera than *Moringa* may have been included."

The example of *nīla-śigru-* or "blue śigru" is striking, as no part of any species of moringa is blue (Meulenbeld 2009=2018: 81–83).

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[36] The entire *haritavargaḥ* is detailed in *Sūtrasthāna* 27.166–77. For a translation of the whole passage see Sharma & Dash 1976: 523. I translate the stanza containing *śigru-* (ed. J.T. Āchārya 1941: 162):

yavānī cārjakaś caiva śigruśāleyamṛṣṭakam |
hṛdyāny āsvādanīyāni pittaṃ utkleśayanti || 170 ||
"Yavānī and Ārjaka; Śigru, Śāleya, and Mṛṣṭaka: pleasant, appetizing, they excite *pitta*."

[37] See Waterman et al. 2021: 126. The glucosinolates in these plants break down into isothiocyanates which produce the pungency.

Finally, I have found an echo of *śigru*'s pungent description in a non-Āyurvedic source: in the economic treatise Arthaśāstra, from the first centuries C.E.,[38] *śigru* "sections"[39] are put in the "pungent category" (*kaṭukavargaḥ*) of the general store:

> *Arthaśāstra* 2.15.20 (ed. Kangle 1960: 64):
>
> *pippalī-marica-śṛṅgiberājājī-kirātatikta-gaurasarṣapa-kustumburu-coraka-damanaka-maruvaka-śigru-kāṇḍādiḥ kaṭukavargaḥ* || 20 ||
> "Long pepper, black pepper, ginger, cumin, Indian Gentian, white mustard, coriander, Coraka, Damanaka, marjoram, stalk of the drumstick tree, and the like constitute the category of spices" (tr. Olivelle 2013: 137).

Kangle (1972: 124) had also translated the "pungent category" *kaṭuka-vargaḥ* simply as "spices," which is not necessarily exact.

§3 The semantics of sharpness

The preceding survey will have brought a theme into focus: the forbidden consumption in Dharma texts of plants with sharp flavors. In the ancient lists we have seen, sharp-tasting plants constantly recur with *śigru-*: mustard, ginger, radish, onion, garlic, pepper, etc. In this section, a case will be made for a semantic range of "sharpness" in derivatives of the Indo-Iranian root *(*s*)*tig-* which crosses sensory boundaries, from sharp shape (visual) to sharp heat (tactile) to sharp taste (gustative), providing a new explanation of the semantic link between words for "garlic" in Iranian languages and the word *śigru-* as denoting moringa or pungent plants generally in Sanskrit. Parallel semantic phenomena in linguistic groups farther afield will also be examined.

Lubotsky (2002:198–200) has suggested that Sanskrit *śigru-* could be a loanword[40] from Scythian in the course of his discussion of Justi's derivation of the name of the Old Persian month *θāigraci* as being the month in which the garlic(-gathering) festival (**θigra*(*ka*)- or **θigraci-*) takes place. Lubotsky adds the evidence of the Ossetic festival name *cyrγisæn/cirγesæn* which would also originally have referred to garlic-gathering. Modern Persian *sīr* "garlic" is most likely derived from Old Persian **θigra-* "garlic" in a development parallel to that of **tigri* > Modern Persian *tīr* "arrow." These words would all be related to Proto-Iranian **tigra-* "sharp," the Old Persian words with initial *θi-* being borrowed from a Scythian dialect in which the sound change **ti-* into **t*^{s}*i-* was regular. Lubotsky suggests that the semantic link of sharpness between garlic and Sanskrit *śigru-* be via the pointed shafts of the garlic plant next to the pointed hanging immature fruits of the moringa. However, we have seen that *śigru-* did not necessarily denote moringa, but did necessarily refer to pungent plants in general. Therefore, in the light of the findings of this paper, I would suggest that the semantic link of "sharpness" refers

[38] The redactional history of this ancient treatise, which expounds in detail on all practical matters of importance for government and economics, is complex: the form we know was probably redacted somewhere between 175–300 C.E., though the core must date to around the 1st century C.E., and the sources reach back several centuries before the common era; see Olivelle 2013: 25–31.

[39] The idea of the sections (*kāṇḍa-*) is a little vague; *kāṇḍa-* is usually used in relation to segmented reed-like plants. *ikṣu-kāṇḍa-* "sugarcane stalk" is mentioned in the "fermented juices" category just before (2.15.17).

[40] Speaking of loanwords, I am not sure if it has been noticed that the word *palāṇḍu-* "onion," attested from the *Āpastambaśrautasūtra* onwards and having no convincing etymology (EWAia, KEWA s.v.), has the structure of "trisyllabic nouns with long middle syllable" which defines one category of Indo-Aryan loanwords from a BMAC language (Lubotsky 2001: sections 3.3 and 4.1).

not so much to shape as to taste. Quite a few Āyurvedic synonyms of *śigru-* refer to its pungency using the adjective *tīkṣṇa-* (see Meulenbeld 2009=2018: 78, 88–89): *ati-tīkṣṇa(ka)-* "extremely sharp;" *su-tīkṣṇa-* "very sharp;" *tīkṣṇa-gandha-*, *tīkṣṇa-gandhā-*, and *tīkṣṇa-gandhaka-* all "sharp-smelling;" *tīkṣṇa-mūla-* "having sharp (flavored?) roots"; also *tīkṣṇa-parṇa-* "having sharp (flavored?) leaves" listed in Meulenbeld 1999–2002 IIA: 336 with note 212 in IIB: 361. BR (s.v.) describes *tīkṣṇa-* as "scharf in den verschiedenen Bedd. des Wortes (wie *tigma*, welches in den älteren Büchern gebräuchlich ist)" and gives the range of the word's semantics including "scharf (vom Geschmack)": *tīkṣṇa-* is said to be a name for several substances, among which saltpeter, pepper, mustard, asafoetida, and indeed, °8, "*Moringa pterygosperma* Gaert."[41] The compound name *tīkṣṇa-kanda-* (literally "sharp (tasting) root") is further listed as a name for "onion," and *tīkṣṇa-mūla-* (also "sharp(-tasting) root") again as a name for moringa. Compounds formed with *tikta-* also denote plants with sharp flavors: cf. *tikta-gandha-* "mustard" (literally "sharp smell") and *tikta-taṇḍulā-* "pepper" ("sharp-grain)"; see also *tiktaka-* "subs. 'etwas bitter Schmeckendes'" (see all BR s.v.).

The word *tīkṣṇa-*, along with other Sanskrit adjectives that can thus describe both physical and gustative sharpness (*tigma-*, *tikta-*), derives from the Sanskrit verbal root *tij-* "to be sharp," generally cited in etymological dictionaries with only this meaning (EWAia under TEJ "scharf machen, zuspitzen," as per Gotō 1987: 165; Werba 1997: 190 "scharf sein/machen"). The same range of meaning is given to the reconstructed Indo-Iranian root *(*s*)*tig-* and further to Proto-Indo-European *(*s*)*teiǵ-* (see Lubotsky 2008, with a list of derivates in Sanskrit and Iranian on page 310). However, verbal and adjectival formations from the Sanskrit root *tij-* showing the secondary association of sharp heat and splendor are present from the oldest Vedic texts onwards, often connected to the "piercing" action of fire/Agni. We can compare Ṛgvedic *tigmá-* "scharf" but also "heiß" (EWAia s.v.); in *Maitrāyaṇīsaṁhitā* 1.6.3, the "sting" of plants is transferred to the fire in a passage which employs both the derivative noun *téjas-* and verb-forms from the form of the root with *s*-mobile, *stig-* (discussed in Lubotsky 2008: 310, note 10); see further the passages from the Atharvaveda and Yajurveda in Digiovine 1990: 159, 161. Digiovine (*ibid*. p. 163–4), citing related verbal formations in Iranian (Khotanese) meaning "to shine," admits the possibility that already Indo-Iranian **tig-* could have had a secondary meaning "to shine" alongside the primary meaning "to be sharp/sharpen."[42] If derivatives of Proto-Iranian **tigra-* could have referred to garlic because of its sharp taste, and then be borrowed into Indo-Aryan as a term for other sharp-tasting plants, then Proto-Indo-Iranian **tig-* might have already been used to refer to sharpness or intensity on a number of sensory levels: from tactile (used for both pointed and well-honed hard objects) to visual (brightness) and gustative (pungency). Going back to the Atharvavedic attestation of *śigru-* (see §2.3) as a tree protecting against arrow attacks, we might expect it to refer to some aspect of the tree resembling an arrow and thus relate to physical sharpness. On the other hand, it is there associated with *tumburu-*, the name of a plant similarly described as pungent, sharp and hot (*kaṭu, tīkṣṇa, uṣṇa*) in the *Carakasaṁhitā* (Meulenbeld 2009=2018: 38–39, note 38) and also associated with *śigru-* in Āyurvedic lists: the form *śigruka-* occurs in a *dvandva* compound with *tumburu-* in *Carakasaṁhitā* Ci.27.54 (Meulenbeld 2009=2018: 13); in the *Aṣṭāṅgasaṁgraha* Sū.7.153cd–157, they occur together in the category of

[41] See Olson 2017:19–20 on the spurious name *Moringa pterygosperma* Gaert. and the obsolete synonym *Guilandina moringa* Linn., and Meulenbeld 2018: 94 on the frequently wrong and imprecise citation of botanical names in Sanskrit dictionaries in general (also the examples p. 79, notes 29, 33, 37, etc.).

[42] For the forms with *s*-mobile, Sanskrit *stig-* seems to mean "sting, penetrate" (Lubotsky 2008, with input from Werner Knobl), and Iranian **staiǰ-* "stab" plus a secondary development, in some forms, of the meaning "to be contentious" (Cheung 2007: 361).

haritaka plants having pungent (*kaṭuka*) taste and being also described as *tīkṣṇa* and *uṣṇa* (Meulenbeld 2009=2018: 26). Indeed, Griffiths has identified *tumburu-* as originally denoting species of *Zanthoxylum*, whose fruits are pungent (see note 18 above). Lubotsky mentions one of the "Benennungsmotive" of garlic being the "arrow-like" appearance of its shafts, but the pungency of garlic as an identifying quality must be quite strong as well. Indeed, the Ossetic word *bodæn* (see Cheung 2002: 173 under *bud*), which Lubotsky cites as replacing the older name for garlic *cyrγ/cirγ* from **tigra-*, derives from Proto-Iranian **baudana-* "smelly" (Lubotsky 2002: 200).

As we have seen, Indo-Aryan languages have a well-developed set of words related to the root *tij-* which can express sharpness across a range of sensory modes: sharp shape, heat, flavor, and smell. We have also seen some evidence that this semantic complexity applies to derivatives of Indo-Iranian **tig-*. What about other Indo-European languages? There are some parallel semantic overlaps which can be cited, though they do not involve the same root: if we look at Latin *pungo* (the origin of English "pungent" as well as "puncture"), Lewis & Short's Latin Dictionary[43] has under sense I "to prick" and under sense I.B.2 "to affect sensibly, to sting, to bite," with the telling example from Pliny the Elder's *Natural History* (31.114): *adulteratur in Aegypto calce, deprehenditur* ***gustu****. sincerum enim statim resolvitur, adulteratum calce* ***pungit*** *et asperum reddit odorem vehementer* "In Egypt it is adulterated with lime, which is detected by the taste; for pure soda melts at once, but adulterated soda stings because of the lime, and gives out a strong, bitter odour" (ed. & tr. Jones p. 448–9).[44] In German, at least modern "scharf" can refer both to physical and gustative sharpness: I am not able to verify how far back this semantic range goes, but we find an extended use of the adjective "scharf" in *scharfsinnig* "sharp-witted" which apparently exists since the 15th century (*s.v. Wolfgang Pfeifer Etymologisches Wörterbuch*, accessed online through https://www.dwds.de). Finally, we can cite modern Russian adjective острый which can equally apply to a sharp knife and to acrid taste.[45] Thus it is possible to say that such an extended semantic range for words meaning "sharp" is rather common in Indo-European languages, but there are examples outside of this family as well: Arabic حَاد (*hhad*) "sharp," for knifes or spicy food, shows the same sensory range.[46] In contrast, I have not been able to locate a word like this in Mandarin Chinese.[47]

§4 Why are sharp-tasting items like garlic prohibited for consumption by twice-borns in Dharma texts?

This survey has also provided material for proposing some cultural reasons behind the famous garlic-and-onion prohibition for certain groups, whether for all the "twice-borns" or specifically for Brahmins.

We have seen that besides their attestations in Āyurveda, the word *śigru-* is practically restricted to ritual texts of a particular bent (§2.3) and to Dharma texts (§2.4), and that garlic co-occurs with it in both of these contexts. It is possible that the use of *śigru-* and garlic in hostile rites of the Atharvan and later Tantric ritual traditions might have something to do with their integration among the banned foods of the orthodox Dharma texts: if they could be used to

[43] Oxford: Clarendon Press (1879), accessed online through www.perseus.tufts.edu.
[44] Pliny. *Natural History, Volume VIII: Books 28-32.* Translated by W. H. S. Jones. *Loeb Classical Library* 418. Cambridge, MA: Harvard University Press, 1963.
[45] Thanks to friend and native speaker Olga Levaniouk, from Russia, for confirming this.
[46] Thanks to friend and native speaker Andrea Abi Nader, from Lebanon, for this information.
[47] Thanks to friend and native speaker Bai Yu, from China, for trying!

channel violent ritual power to harm and control others, then they might residually contain this negative energy and thus be inauspicious and unfit to eat. Curiously, this situation makes for an inverted parallel to the well-known traditions surrounding garlic in Eastern Europe: garlic is there used to bless and protect people from evil influence and disease, with the power of garlic to ward off vampires being one of the most famous aspects of this folk tradition.

The textual link of the "bloody resins," the banned tree saps which Brāhmaṇa mythology equates with the blood of Brahmin-murder, provides another possible explanation, as *śigru-*, if identified with moringa, does exude a reddish resin when cut. However, it is hard in this case to see the connection to garlic, onions, and the rest other than the fact that they are put in the same list with the tree saps and *śigru-*.

Although the association of garlic and *śigru-* with hostile ritual practices and mythical crimes might play a role, the most probable cultural explanation for their prohibition lies in my opinion with Āyurvedic descriptions of spicy aphrodisiacs. We have seen (§2.5) that although *śigru-* itself was not considered an aphrodisiac in Āyurveda, all the sharp-tasting vegetables with which it is there associated are considered potent aphrodisiacs: garlic, onion, etc. Here it is not hard to understand that a Brahmacārin student observing the vow of celibacy should then be forbidden to touch these spicy foods which might inflame their passions, and the same for the aged renouncing ascetic in the wilderness. However, while some of the Dharma passages reviewed (§2.4) specifically concern ascetics, others make a blanket ban on the pungent for all "twice-borns," which would include householders who need sexual potency so as to procreate. This is not necessarily a problem though, as it could be said that normally a young healthy male should not need aphrodisiacs to do the job, and that recourse to such an adjuvant in his case would be a sign of excessive attachment to sensual pleasures, a negative trait amply described in classical Sanskrit literature. As I have noted in footnote 34, a Śrīvaiṣṇava Brahmin friend who had attended traditional gurukula school was indeed of the opinion that the dietary restrictions had to do with avoiding the excitement of lust, and he considered moringa (which he translated as *śigru-* in Sanskrit) to be an aphrodisiac (though this is a common association in Tamil culture generally).

Appendix: Chronological table: synopsis of *śigru-* references in this paper

Date	Source	Information
circa 1000 B.C.E.	*Paippalādasaṁhitā* 20.61.8–10 (Atharvaveda hymn collection)	*śigru-* easily found growing here and there in cultivated areas; prayed to along with a mountain tree for protection against arrow wounds
circa 500 B.C.	*Kauśikasūtra* 29.23 and 38.5 (oldest Atharvavedic ritual manual)	plural *śigru*-s (probably the seeds) used in a rite to cure worms; *śigru-śarkarā*s (meaning unknown) offered to the fire in a rite to repel a storm
circa 500 B.C.E.	Pāṇini's *Gaṇapāṭha* to *Aṣṭādhyāyī* 4.3.163–4	the derivative *śaigrava-* means "śigru-fruit"
last centuries	Buddhist *Jātaka*s 3.161, 5.406, 6.535 (Buddhist	Pāli *siggu* and *sobhañjana*(*ka*) listed among garden trees; shoots as poetic comparison

B.C.E.	literature)	for slender female body; commentarial glosses equate the two names
layers from around 3rd or 2nd century B.C.E. to 4th or 5th century C.E.	*Carakasaṁhitā Sūtrasthāna* 27.170	*śigru*- described as pleasant, appetizing, and exciting the hot humor; placed in the category "*haritavargaḥ*" along with pepper, ginger, garlic, and onions
layers from around 3rd century B.C.E. to sometime before the 6th century C.E.	*Suśrutasaṁhitā Sūtrasthāna* 46.221–222	*śigru*- placed in category "*śākavargaḥ*" with pepper, mustard, radish, garlic, onion, etc. as plants that "perfect" food preparations
ibid.	*Suśrutasaṁhitā Uttaratantra* 21.17	in a recipe much quoted elsewhere (*Aṣṭāṅgahṛdaya Uttarasthāna* 18.12, *Agnipurāṇa* 282.8, *Garuḍapurāṇa* 1.171.49), aching ears are to be filled with a juice of *śigru*- and *muraṅgī*- (difference unclear), garlic, ginger, radish, and banana
post-Vedic	*Atharvaveda Pariśiṣṭa* 26.5.3 (ritual)	*śigru*- one of several woods used in a rite for eradicating enemies
post-Vedic	*Atharvaveda Śāntikalpa* 20.5 (ritual)	*śigru*- thrown to the fire along with water, bdellium, and poison
first centuries C.E.	*Arthaśāstra* 2.15.20 (economic treatise)	*śigru*- "sections" in the "pungent category" (*kaṭukavargaḥ*) along with pepper, ginger, cumin, mustard, etc.
2nd–3rd century C.E	*Manusmṛti* 6.14 (normative treatise)	*śigru*- as food banned for forest ascetics along with honey, meat, the Bhauma plant, mushrooms, the Bhūstṛṇa plant, and the Śleṣmātaka fruit; Medhātithi commentary says *śigru*- is a vegetable well-known among the Vāhīkas (Punjab?)
4th century C.E.	*Vaikhānasadharma*-(or -*smārta*-)*sūtra* 10.5 (ritual)	*śigru*- banned for ascetics along with onions, tree-sap, and some other plants
4th–5th century C.E.	*Yājñavalkyasmṛti* 1.171 (normative treatise)	*śigru*- banned for twice-borns along with consecrated foodstuffs, red tree-sap, unconsecrated meat, what grows on feces, mushrooms
about 600 C.E.	Vāgbhaṭa's *Aṣṭāṅgahṛdaya*	*śigru*- among plants that are considered

	Sūtrasthāna 6.106–7 (Āyurveda)	"burning, acrid, astringent, hot, savory, stimulating digestion"
7th century C.E.	Bāṇa's *Harṣacarita* 7 (epic poem)	*śigru*- among plants in house gardens on the outskirts of the Vindhya forest on the Malwa Plateau side
between the 8th and 10th centuries C.E.	Candranandana's *Madanādininighaṇṭu* 4.19–21	three types of *śigru*-
9th to beginning of 10th century C.E.	Rājaśekhara's *Kāvyamīmāṁsā* 18.55 (poetical treatise) and his play *Bālarāmāyaṇa* 5.32	*śobhāñjanaka*- and Prākrit *sohañjana* are a staple springtime flowering plant
12–13th century C.E.	*Vīṇāśikhatantra* 198 and 232 (Śaiva ritual)	*śigru*- as firewood in a rite to make a man hated; flowers thrown into fire to spread dissent
some time before the 15th century C.E.	*Viṣṇusaṁhitā* 29.16 (ritual)	*śigru*- banned along with garlic, mushrooms, sour milk products, sheep's milk and others

Abbreviations

BR: von Böhtlingk, Otto & Rudolph von Roth 1855–1875.

CDIAL: Turner 1966.

DEDR: Burrow & Emeneau 1984.

EWAia: Mayrhofer 1986–2001.

KEWA: Mayrhofer 1956–1980.

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