

# Acts of Improvement: On the Use of Tonics and Elixirs in Sanskrit Medical and Alchemical Literature

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**B**OTH Sanskrit medical and alchemical works describe procedures and formulations called “*rasāyana*”.<sup>1</sup> The term “*rasāyana*” is a compound of two words, “*rasa*” (liquid, juice, flavour, nutritive juice, essence) and “*ayana*” (path, way) or “*āyana*” (reaching, attaining). Because of the polyvalent meanings of its elements, in particular of “*rasa*,” there are different valid possibilities for interpreting the meaning of *rasāyana*.<sup>2</sup> Fenner (1979: 69) suggested that “(u)sing the term *rasa* in its general sense of essence, the term *rasāyana* could be taken to mean the act of preparing what is of value in something, or simply the act of improvement.”<sup>3</sup>

<sup>1</sup> The differentiation between Sanskrit medical and alchemical literature is not clearcut in all cases. I generally follow the convention of differentiating between them as proposed by Meulenbeld (1999–2002: IIA, 581–789), who separately lists a series of works under the rubric of “*rasaśāstra*.” As the inclusion of these works in a history of Indian medical literature indicates, the relationship between them and medical treatises, i.e., works predominantly dedicated to health and healing, can be very close. Meulenbeld (1999–2002: IA,4) notes that: “Rasaśāstra (alchemy and iatrochemistry) and ayurveda are overlapping areas and became intimately connected with each other in the course of time. Many texts can only be classified as intermediate between the two or as belonging to both at the same time. For this reason my survey embraces the literature on *rasaśāstra*.” See also White 2012: 491 for a useful list of

common elements found in alchemical works not found in medical works. On further differences between medical and alchemical literature, see Dagmar Wujastyk forthcoming.

<sup>2</sup> Consider, for example, White’s (1996: 184) “way of *rasa*,” Palit’s (2009: 18): “path that *rasa* takes,” *rasa* being defined as “primordial tissue or plasma” here, and Rāy’s translation of *rasāyana* substances and medicines as “Elixir Vitae” (Rāy 1903: 80).

<sup>3</sup> Based on a definition of *rasāyana* in the *Carakasaṃhitā*, Fenner (1979: 69) concluded that “*rasa* can be viewed generally in its meaning as the nutrient fluid which spreads through the body, and specifically as one of the tastes or active principles which makes up this fluid. The term *ayana* in *rasayana* can now be understood as the art or way (from *ayana* = path) of preparing (or, as the Tibetans put it, extracting) the *rasa*.”

In Sanskrit medical literature, *rasāyana* is defined as one of eight subject areas of medicine. The proclaimed aim of *rasāyana* therapies is to preserve or promote health and well-being, but also to prolong life, to halt degeneration caused by ageing, to rejuvenate and to improve cognitive function. The term “*rasāyana*” describes the therapies that together constitute this branch of medicine; the methodology and regimen of treatment; and the medicinal substances and formulations used in these therapies.

Many Sanskrit medical works dedicate chapters to the subject of *rasāyana*.<sup>4</sup> These typically contain lists of recipes and descriptions of their applications, but also definitions of *rasāyana*; expositions on the characteristics and properties of single raw materials; instructions on the methodology of treatment; descriptions of who is suitable for treatment; and prescriptions for behaviours and diet before, during or after treatment, or even in lieu of treatment. The oldest medical works’ presentations of *rasāyana* are quite unlike each other: the *Carakasamhitā* and *Suśrutasamhitā* do not share a single *rasāyana* recipe, though there is some overlap in raw ingredients. There is also a marked difference in their perspectives on the functioning of *rasāyana* as anti-ageing or rejuvenating therapy. The treatises do, however, share ideas about treatment methodology. Both describe two general methods of treatment: a multi-layered treatment that takes place in a purpose-built hut under particular circumstances, and a simpler version that takes place without the special therapy structure.<sup>5</sup> Both involve preliminary treatments of internal cleansing, followed by a mild diet for regaining strength, and then treatment proper with the chosen tonic over a period of time. The *Carakasamhitā* embeds its description of *rasāyana* in a narrative about ancient seers (*rṣi*) who are presented as the first consumers of *rasāyana* as well as the first human physicians and authors of the medical texts. This narrative framework is, however, absent in the *Suśrutasamhitā* and only briefly alluded to in later medical works in the context of particular formulae, as for example, “Cyavana’s food” (*cyavanaprāśa*), a *rasāyana* formula associated with the Vedic seer Cyavana. Later works, starting

4 The following Sanskrit medical works were consulted for this article: the *Carakasamhitā* (early centuries CE), *Suśrutasamhitā* (early centuries CE), *Aṣṭāṅgahṛdayasamhitā* (ca. seventh century), *Aṣṭāṅgasamgraha* (ca. seventh century CE), *Kalyāṇakāraka* (ca. ninth century CE), *Siddhayoga* (ca. tenth century CE), *Cakradatta* (ca. eleventh century CE), *Vaṅgasenasamhitā*, (ca. eleventh/twelfth century CE), *Sārṅgadharaśamhitā* (ca. thirteenth/fourteenth century CE),

*Bhāvaprakāśa* (sixteenth century CE), *Yogaratnākara* (eighteenth century CE), *Bhaiṣajyaratnāvalī* (eighteenth/nineteenth century CE). Apart from the *Sārṅgadharaśamhitā*, all of these works contain separate chapters on *rasāyana*.

5 On the methods of treatment in the hut (*kuṭīpraveśika*) and the alternative “wind and heat” treatment (*vātātāpika*), see the works of Roṣu (1975), Dominik Wujastyk (2003: 76–78, 125–30) and Dagmar Wujastyk (2015).

with the *Siddhayoga* (ca. 10th century), present simplified versions of the more detailed expositions of the classical works, focussing more on lists of formulae than on descriptions of treatment methods.<sup>6</sup> There is nevertheless a strong continuity with the older works, reflected in the reiteration of classical *rasāyana* formulae and in quotations from the older works. However, the newer works also added new materials to the canon of *rasāyana* substances and formulations, and increasingly introduced new methods of preparing medicines that are closely related to procedures for preparing raw materials and compounds described in alchemical works.

In alchemical literature, the term *rasāyana* occurs in different contexts. It is sometimes used to denote tonics that seem to have a similar function to those described in medical literature. As in medicine, one can also find the term *rasāyana* with the implication of a process, in the sense of a method of treatment or regimen. Most prominently, this regimen is associated with the culmination of alchemical operations, i.e., the intake of the mercurial elixir and its effects. Here, *rasāyana* seems to encompass the preparation of the practitioner for the intake of the mercurial elixir through various cleansing techniques; the formulation and the intake of preparatory tonics and their effects; the formulation and intake of the final mercurial elixir; and the outcomes of that intake.

In the following, I will first examine how the Sanskrit medical treatises dealt with the subject of *rasāyana*. I will consider a number of definitions of the term “*rasāyana*” and how the medical writers envisioned its role as a branch of Ayurveda. I will also explore what areas of application the medical treatises conceived for *rasāyana*. I will then examine how *rasāyana* is presented in alchemical literature. Using the oldest alchemical work’s chapter on *rasāyana* as a starting point for comparison with other alchemical works’ expositions on the subject, I will attempt to delineate alchemical perspectives on *rasāyana*, highlighting both commonalities and divergences between alchemical works. In the final section of this article, I will discuss whether or how medical and alchemical conceptions of *rasāyana* connect in terms of aims, methods and procedures.

6 Among the works that I consulted for this paper, the *Varigasesanaṃhitā* is the exception to this rule in that it does not just present a pared-down version of *rasāyana* with lists of formulae. Its *rasāyana* chapter is long and varied and contains a number of elements not present in any of the other works’ *rasāyana* chapters, such as recipes for different kinds of vinegar, a description of treatment

using a head pouch, an enumeration of vital spots, and a list of diseases caused by the humours wind, bile and phlegm, respectively. The presence of these elements is somewhat puzzling as they are not necessarily presented as part of *rasāyana*, but are in the middle of the chapter between recipes and prescriptions that are more commonly found in *rasāyana* chapters.

## 1. RASĀYANA IN SANSKRIT MEDICAL LITERATURE

THE medical treatises offer some definitions of *rasāyana*, or rather, of what is meant to be achieved through *rasāyana*. Let us consider a few such definitions, two from the earliest medical treatises, and one from a later one, the *Siddha-yoga* (ca. 10th century), and its elaboration in the *Bhāvaprakāśa* (16th century).

## DEFINITIONS

In its description of the eight subject areas of Ayurveda, the *Suśrutasamhitā* explains *rasāyana* as follows:

रसायनतन्त्रं नाम वयःस्थापनमायुर्मैधाबलकरं रोगापहरणसमर्थं च<sup>7</sup>

The “system of *rasāyana*” concerns preserving youthful vigour, promoting longevity, mental power and strength, and eliminating disease.

Several terms of this definition deserve some discussion. The first of these, translated here as “preserving youthful vigour” is “*vayaḥsthāpana*.” “*Vayas*” is often used in the sense of “youth,” and its characteristics of “vigour,” or “power.” However, the *Suśrutasamhitā* also uses the term “*vayas*” in the broader sense of “age” in three stages: childhood, maturity, and old age.<sup>8</sup> Fixing, or preserving (“*sthāpana*”) *vayas*, therefore, may mean preserving youthful vigour, but it could also mean preserving whatever stage of life a person is in. Here, another rule is relevant, namely for whom *rasāyana* treatment is appropriate, defined in the *Suśrutasamhitā* as those in the “early or middle” stages of age.<sup>9</sup> The use of “*sthāpana*”: “fixing,” “preserving,” “maintaining,” shows clearly that the aim of *rasāyana* as defined in the *Suśrutasamhitā* is not rejuvenation, but rather anti-ageing, i.e., halting the progress of ageing rather than reversing it.

<sup>7</sup> *Suśrutasamhitā*, *Sūtrasthāna* 1.8. (part)

<sup>8</sup> A definition of the three stages of life can be found in *Suśrutasamhitā*, *Sūtrasthāna* 35.29. See also Barois in this volume.

<sup>9</sup> See *Suśrutasamhitā*, *cikitsāsthāna* 27.3: पूर्वे वयसि मध्ये वा मनुष्यस्य रसायनम्॥ प्रयुञ्जीत भिषक्प्राज्ञः स्निग्धशुद्धतनोः सदा ॥ ३ ॥ “A wise physician should apply *rasāyana* treatment to a man in his early or middle age, always after his body has been cleansed and oiled (3).”

In this rule, the *Suśrutasamhitā*, whose *rasā-*

*yana* formulations are described as having anti-ageing and life-extending, but not rejuvenating properties, contrasts with the *Carakasamhitā*, which attributes rejuvenating powers to many of its *rasāyana* formulae and gives several examples of very old men regaining their youth through *rasāyana* therapy. The most famous of these formulations is *cyavanaprāśa*, described in *Carakasamhitā*, *Cikitsāsthāna* 1.1.62–74.

In the *Carakasamhitā*, we find a longer discussion of what *rasāyana* is in the beginning of its *rasāyana* chapter.<sup>10</sup> The chapter starts out with defining medicine:

चिकित्सितं व्याधिहरं पथ्यं साधनमौषधम् ।  
 प्रायश्चित्तं प्रशमनं प्रकृतिस्थापनं हितम् ॥ ३ ॥  
 विद्याद्भेषजनामानि भेषजं द्विविधं च तत् ।  
 स्वस्थस्योर्जस्करं किञ्चित्किञ्चिदार्तस्य रोगनुत् ॥ ४ ॥

One should know “therapeutics,” “that which removes disease,” “wholesome,” “cure,” “herbal medicine,” “expiation,” “calming,” “supporting the natural condition,” and “beneficial” as names for medicine. And medicine is of two kinds: whatever promotes strength in the healthy, and whatever eliminates disease in those who are ill.

The treatise defines *rasāyana*, together with *vr̥ṣya* (virility therapy) as belonging to the first category, the promotion of strength and vigour in the healthy. However, this is explained as a matter of emphasis rather than as an absolute difference: While *rasāyana* may mostly be concerned with promoting strength in the healthy, it can also be employed to alleviate disease. A more detailed definition of *rasāyana* follows:

दीर्घमायुः स्मृतिं मेधामारोग्यं तरुणं वयः ।  
 प्रभावर्णस्वरौदार्यं देहेन्द्रियबलं परम् ॥ ७ ॥  
 वाक्सिद्धिं प्रणतिं कान्तिं लभते ना रसायनात् ।  
 लाभोपायो हि शस्तानां रसादीनां रसायनम् ॥ ८ ॥<sup>11</sup>

Through *rasāyana*, a man gains longevity, memory, mental power, health, youthful vigour, a great radiance, complexion, and voice, an extremely strong body and keen senses, mastery of speech, respect and beauty. *Rasāyana* assuredly is a means for attaining the proclaimed principal asset, etc.<sup>12</sup>

<sup>10</sup> See *Cikitsāsthāna* 1.1. 1–8. In the edition of the *Carakasamhitā* used here (*Carakasamhitā*), the *rasāyana* chapter is located in the section on therapeutics (*Cikitsāsthāna*) and it is divided into four subchapters: 1. *abhayāmalakīyo rasāyanapāda* (“the *rasāyana* section dedicated to the chebulic and emblic myrobalans”), 2. *prāṇakāmīyo rasāyanapāda* (“the *rasāyana* section dedicated to the desire for vital breath”), 3. *karapracitīyo rasāyanapāda* (“the *rasāyana* section dedicated to

hand-plucked (emblic myrobalan fruits)”) and 4. *āyurvedasamutthānīyo rasāyanapāda* (“the *rasāyana* section dedicated to the uplift of the science of life”).

<sup>11</sup> *Carakasamhitā*, *Cikitsāsthāna* 1.1.7–8.

<sup>12</sup> I follow Philipp Maas’ analysis of *rasa* as here being used in the sense of “principal asset,” which in this case refers to the main function of *rasāyana* of providing longevity (*dīrgham āyus*). See Maas’ detailed discussion of this passage in this volume.

This passage recurs in a number of later medical texts, albeit with some variations. For example, “*praṇāti*” (“respect”) is sometimes replaced with “*vr̥ṣya*” (“manly power,” “sexual vigour”) and the reference to *rasāyana* as “a means for attaining the proclaimed principal asset, etc.” is omitted.<sup>13</sup>

A third definition of *rasāyana*, first found in the *Siddhayoga* and repeated in several later texts, reads:

यज्जराव्याधिविध्वंसि भेषजं तद्रसायनम्।<sup>14</sup>

A *rasāyana* is a remedy that removes ageing and disease (or: that removes disease caused by ageing).

This statement is typically followed by directions adapted from *Suśrutasaṃhitā*, *Cikitsāsthāna* 27.3–4 on the appropriate condition and age of someone who wishes to undertake *rasāyana* treatment, i.e., that the body should be purified before treatment<sup>15</sup> and that treatment is appropriate for those in the early and middle stages of life.

The *Bhāvaprakāśa* supplements the *Siddhayoga*’s short definition:

यज्जराव्याधिविध्वंसि वयःस्तम्भकरं<sup>16</sup> तथा ।  
चक्षुष्यं बृंहणं वृष्यं भेषजं तद्रसायनम्।<sup>17</sup>

<sup>13</sup> This variation is already found in *Aṣṭāṅgahṛdaya*, *Uttarasthāna* 39.2 and *Aṣṭāṅgasamgraha*, *Uttarasthāna* 49.2. The reading is also adopted in *Siddhayoga* 69.2–3, *Bhāvaprakāśa*, *Uttarakhaṇḍa* 2.2–3 and *Bhaiṣajyaratnāvalī*, *Uttarakhaṇḍa* 73.1. A slightly different reading is found in *Vaiṅgasenasamhitā* 77.371–372: वाक्सिद्धिं प्रणतं कान्तिं लभतेऽन्यात्रसायनात् (372 cd). And an alternative reading is found in *Yogarātnākara* 76.2: दीर्घम् आयुः स्मृतिं मेधामारोग्यं तरुणम् वयः । देहेन्द्रियबलं कान्तिं नरो विन्देत्त्रसायनात्. A further variant is found in *Rasaratnasamuccaya* 26.1–2, which reads “*vr̥ṣatām*” for Caraka’s “*praṇatim*.”

<sup>14</sup> See *Siddhayoga* 69.1; *Cakradatta* 66.1; *Vaiṅgasenasamhitā* 77.371; *Bhaiṣajyaratnāvalī*, *Uttarakhaṇḍa* 73.1. *Sārṅgadharaśamhitā* 1.4.13 gives a similar definition: रसायनं च तज्ज्ञेयं यज्जराव्याधिनाशनं॥ “*Rasāyana* is known as that which removes disease and ageing (or: disease caused by ageing).”

<sup>15</sup> In the *Suśrutasaṃhitā* (*Cikitsāsthāna* 27.3), readying the body for *rasāyana* therapy includes oleation and purification. Puri-

fication is not defined further, but probably means that the patient has undergone emesis and purgation. Later texts add self-restraint and blood-letting to the necessary preparations for *rasāyana* therapy. For example, *Aṣṭāṅgahṛdayasaṃhitā*, *Uttarasthāna* 39.3 reads: पूर्वं वयसि मध्ये वा तत्रयोज्यं जितामनः । स्निग्धस्य स्रुतरक्तस्य विशुद्धस्य च सर्वथा ॥ ३॥ “It should be applied in early or middle age to one who has self-restraint, always after he has been oiled, his blood has been let and he has been purged.” Omitting the limitations regarding the appropriate age for *rasāyana*, the reading of the second half of this verse is also found in *Siddhayoga*, chapter 69, 4.

<sup>16</sup> The edition of the *Bhāvaprakāśa* used here reads *stambhakakaram* instead of *stambhakaram*. Since this adds one syllable too many to the verse, which otherwise consists of eight syllables per quarter, I have emended it to *stambhakaram*.

<sup>17</sup> *Bhāvaprakāśa*, *Uttarakhaṇḍa* 2.1. *Yogarātnākara* 76.1 has the same reading as the *Bhāvaprakāśa*.

A *rasāyana* is a remedy that removes ageing and disease (or: that removes disease caused by ageing) and produces that which supports youthful vigour, aids eyesight, nourishes, and bestows sexual vigour.

#### APPLICATIONS

A complex picture of the variety of goals pursued with *rasāyana* treatment emerges when we look at the various *rasāyana* sections of the medical works and examine what effects are attributed to their formulations. The described effects of *rasāyana* medicines and procedures can be broadly divided into five, partly overlapping, thematic groups:

**Lifespan and ageing** This includes medicines and procedures attributed with effecting rejuvenation, anti-ageing, or the increase of lifespan. In this context, medicines may, for example, be described as providing life-span/vitality (*āyus̥kara*). Phrases concerning the typically male patient often describe him as one who has a long or indeed unlimited life-span (*amitāyū*); or as one who will live for a long time (*jīvati kālāṃ vipulam*). A standard life expectancy of one hundred years (*jīvati śataṃ varśam*) is often mentioned, but we also find several instances in which several hundreds of years of life are promised. The anti-ageing benefits of medicines are often described with expressions like “that liberates from ageing” (*jarāvīmukti*), or “preserving youthful vigour” (*vayassthāpana*). Patients are described as “not subject to old age” (*ajara*), “renewed” (*punarnava*) and “free from wrinkles and grey hair” (*nirvalīpalita*), or as “reaching youthfulness” (*yauvanam eti*).

**Health** This includes medicines and procedures used for the prevention or cure of disease and for the establishment of overall well-being, including the proper functioning of the body and senses. Many *rasāyana* formulations are described as “destroying all disease” (*sarvarogaḥnin*, *āmayanāśana*), while the patient who takes a *rasāyana* medicine becomes “disease-free” (*anāmaya*, *aruja*, *niruja*, *vigataroga*, *vyādhimukta*). There is also frequent mention of specific diseases or disease groups that can be treated by *rasāyana* medicines and methods. Many of these can be categorized as diseases caused by the ageing process, or else as diseases the elderly would be either particularly prone to or vulnerable to. However, almost all of the named diseases are also serious diseases considered particularly challenging to treat.<sup>18</sup>

<sup>18</sup> See Hellwig (2008) for a discussion of the disease categories found in the *rasāyana*

chapters in the *Carakasamhitā* and *Suśrutasaṃhitā*.

**Cognitive power** This includes medicines and procedures that restore, establish or enhance memory power, memorization ability and intelligence. Keywords here include “memory (power)” (*smṛti*), “intelligence” (*medhā*), and “understanding” (*dhī*) as effects of medicines, while the patient is supposed to become “clever” (*matimat*), or “intelligent” (*medhāvin*), or “one who retains what he has heard” (*śrutadhārin*).

**Virility** This includes medicines and procedures which restore or enhance sexual stamina, bodily strength and fertility. Such formulations are described with terms such as “producing sexual vigour” (*vr̥ṣya*). A patient becomes “one who indulges in sexual pleasures” (*kāmacārin*), who has intercourse with one hundred women (*strīśatāni vrajati*).

**Special powers** While these are only indirectly alluded to in the definitions of *rasāyana*, medicines and procedures that provide the patient with bodily and mental perfection and with extraordinary capacities, such as the ability to manipulate the world according to their wishes, frequently occur in the medical works’ *rasāyana* chapters.<sup>19</sup> Bodily perfection can encompass extraordinary beauty, but also extreme strength and agility; a stable and firm body that resembles a diamond (*vajrakāya*) or a stone (*gātram aśmavat sthirībhavati*) and that is impervious to the elements or to disease; and extreme longevity.

*Rasāyana* formulations most often unite a range of benefits from several, and in some cases all, thematic groups. However, there are many examples of *rasāyana* that have a specific focus or a bias towards one group, such as the “*medhyarasāyana*,” medicines for the improvement of cognitive faculties. It is also not always possible to neatly discern one group from the other. Ageing and health could both be considered the overarching category, since the occurrence of certain diseases, or the loss of cognitive or sensory powers or problems concerning sexual stamina may be understood in terms of health problems, but also in terms of ageing, i.e., health problems caused or exacerbated by the ageing process. As we have seen, these are also the dominant terms in the definitions of *rasāyana* in later medical literature, ambiguously presented in a compound (*jarāvōyādhividhvams*) that allows to understand them as the separate categories of “ageing and disease,” or as a combined category of “disease caused by ageing.”

The medical treatises vary in how much weight they assign to the different elements, though there is a general bias towards addressing longevity and the ageing process in all *rasāyana* chapters that I examined. As noted above, the early texts, i.e., the *Carakasamhitā* and the *Suśrutasaṃhitā*, differ from each other in that

<sup>19</sup> See Dagmar Wujastyk forthcoming.



the *Carakasamhitā* presents *rasāyana* as a method that can be used for the rejuvenation of the aged, while the *Suśrutasaṃhitā* defines *rasāyana* as an appropriate method for anti-ageing, i.e., halting rather than reversing the progress of ageing for the young to middle-aged. This division, however, is subsequently superseded in later works, which build upon both the older treatises' materials on *rasāyana* and therefore integrate or at least juxtapose both perspectives.<sup>20</sup>

The eradication of disease plays a particularly important role in the *Aṣṭāṅgasamgraha*, where eighty-eight out of ca. 183 recipes and prescriptions are described as effective against specific diseases or disease groups; and the *Varṅgasenasamhitā*, where forty-eight out of ca. 106 recipes concern specific disease groups.<sup>21</sup> For comparison, out of the ca. fifty-two recipes of the *Carakasamhitā*'s *rasāyana* chapters, only four address specific diseases.<sup>22</sup> And only eight of the *Aṣṭāṅgahrdayasaṃhitā*'s sixty-seven recipes apply to specific diseases. This is an interesting difference to the closely-related *Aṣṭāṅgasamgraha*.

As can be seen in the table in the Appendix, page 30 below, the most commonly mentioned disease or disease group is that of “*kuṣṭha*,” diseases whose symptoms present primarily on the skin, including what might today be dia-

20 A number of later medical treatises reiterate the dictum from *Suśrutasaṃhitā*, *cikitsāsthāna* 27. 3: पूर्व वयसि मध्ये वा मनुष्यस्य रसायनम्॥ प्रयुञ्जीत भिषक्प्राज्ञः (...) – “A wise physician should apply *rasāyana* treatment to a man in his early or middle age (...)” but then nevertheless list recipes that promise to make someone old young again.

21 This statement is based upon a rough count of recipes and prescriptions in the Sanskrit medical works' *rasāyana* chapters. It is difficult to arrive at an absolute count of recipes, as distinctions between recipes and indeed what counts as a recipe are not always clear. To give some examples: Sometimes, the expected outcome of a recipe changes depending on the length of intake. This is a common feature in the *Suśrutasaṃhitā*'s *rasāyana* chapter. That would mean that one could count one recipe as several, but I have opted to count such recipes as one formulation. Further, in the *Suśrutasaṃhitā* (*Cikitsāsthāna* 27.6), cold water, milk, honey and clarified butter are prescribed as anti-ageing substances. The four substances can be taken in different combin-

ations: all together, and in combinations of two or three, or on their own. This would mean a total of fifteen possibilities, all of which have the same effect. Here again, I have counted this as one recipe. Then, many recipes are described as having “the mentioned qualities” (*proktān guṇān*), which could refer to a preceding recipe with details on its application, or otherwise to general *rasāyana* properties. Therefore, while the counts may give a rough idea of the general patterns within *rasāyana* chapters, they are somewhat inexact.

22 The *Carakasamhitā*'s *rasāyana* chapters have an official count of fifty-nine recipes, listed at the end of the first three quarter chapters (i.e., *Cikitsāsthāna* 1.1–3): six recipes in the first, thirty-seven in the second and sixteen in the third. The text does not give numbers for the final quarter chapter. It is not quite clear to me how these numbers are arrived at. In my own count, I arrive at six recipes for the first quarter, twenty-seven for the second, seventeen for the third, and a further two recipes in the fourth. This makes a total of fifty-two recipes

gnosed as leprosy.<sup>23</sup> Other common conditions include cough (*kāsa*), dyspnoea (*śvāsa*), and piles (*arśa*). Typically, one medicine is described as effective against a whole group of diseases, so that the list of diseases that can be tackled with *rasāyana* is quite long. Several *rasāyana* medicines may be indicated for the same disease.

We have seen from the *Carakasamhitā*'s definition of *rasāyana* that *rasāyana* was primarily considered a method of supporting health in the healthy, i.e., preventing disease and promoting well-being. However, the ways in which diseases are mentioned in the recipes suggests the eradication rather than the prevention of disease. For example, rather than stating that diseases will not arise due to the use of a *rasāyana*, terms for "removing," such as "*vināśāna*," "*hara*," or "*ḥapa-kṛṣ*" are used to explain the function of a *rasāyana* tonic.<sup>24</sup>

It is not immediately obvious in what ways *rasāyana* treatment against diseases differs from "regular" treatment described in the other branches of Ayurveda, since all of the diseases mentioned in the *rasāyana* chapter are also mentioned in other contexts in the medical works. Hellwig (2008) has tackled this question to some extent for the *Suśrutasaṃhitā* and the *Carakasamhitā*. According to his findings, the therapeutic application of *rasāyana* in the *Carakasamhitā* "emphasises the connection between the *rasāyana* therapy and the cycle of food, digestion and the building of *dhātus*" and thereby follows the treatise's standard understanding of pathology and treatment.<sup>25</sup> By contrast, *rasāyana* therapy in the *Suśrutasaṃhitā* is associated on the one hand with a special class of disease, the so-called "self-arising" ("*svābhāvika*") diseases. These are conditions such as hunger, thirst, ageing, death, and sleep that are inherent to human bodily existence, but also linked with a linear understanding of the passing of time.<sup>26</sup> On

23 *Kuṣṭha* is both the name of a specific disease, i.e., one that presents with leprosy-like symptoms; and an overarching category that comprises a range of diseases primarily presenting on the skin. In modern ayurvedic practice, *kuṣṭha* is most often used as a synonym for leprosy, but it is worth remembering that this disease category long predates any idea of bacterial infection and that the Sanskrit medical works define *kuṣṭha* on humoral principles. I will in the following refer to *kuṣṭha* as "serious skin diseases."

24 See, for example, *Carakasamhitā*, *Cikitsāsthāna* 1.3.40, where a long pepper tonic is attributed with removing disorders of the spleen (*plīhodaravināśana*), or *Carakasamhitā*, *Cikitsāsthāna* 1.1.40 and 41, where the *rasāyana* called *cyavanaprāśa*

is declared a "remover of cough and dyspnoea" (*kāsaśvāsahara*) and attributed with removing (*apakarṣati*, "it removes") a whole number of diseases.

25 Hellwig 2008: 63.

26 The *svābhāvika* diseases are defined in *Suśrutasaṃhitā*, *Sūtrasthāna* 1.24–25 as: स्वाभाविकास्तु क्षुत्पिपासाज्वरामृत्युनिद्राप्रकृतयः – "Arise by themselves', then, are natural conditions such as hunger, thirst, ageing, death and sleep." Hellwig (2008: 37–39) discusses the interpretation of this passage in Ḍalhaṇa's tenth-century commentary at some length. Ḍalhaṇa differentiates between *svābhāvika* diseases that arise from the humours (*doṣaja*) and those that are inherent to human existence. See also Roṣu (1975: 107) on this passage.

the other hand, the *Suśrutasaṃhitā* describes *rasāyana* as a particularly powerful emergency therapy that can be applied with success in the case of the failure of regular medical treatment.<sup>27</sup> The relevant statement is found in *Suśrutasaṃhitā*, *Sūtrasthāna* 33.3, a chapter on incurable conditions that discusses how to handle major diseases (*mahāvvyādhi*) and especially their complications (*upadrava*). The general advice here is that, once complications have arisen, diseases can no longer be treated, except for through *rasāyana*.<sup>28</sup> Notably, there is a significant overlap (though not a complete match) between the diseases listed in this chapter and those mentioned in the chapters on *rasāyana*.<sup>29</sup>

Strengthening the argument for *rasāyana* as the last hope in desperate cases, Hellwig (2008: 48) also makes note of a passage in the *Suśrutasaṃhitā*'s chapter on the signs of death in wounded patients, which states that once signs of death have appeared, death is certain, but can be warded off by faultless brahmans or by persons engaged in *rasāyana*, austerities and repeated recitation of mantras.<sup>30</sup> This seems to suggest an equality in power of the named groups: brahmans on the one side, and persons engaging in *rasāyana*, austerities and/or recitation on the other. It is not entirely clear whether the second group's practice comprised *rasāyana*, austerities and recitation as one combined practice, or whether different specialists undertook them as alternative and equally efficacious practices. The tenth-century commentator Dalhaṇa seems to have considered them separate practices (and practitioners) and defines "persons engaged in *rasāyana*" as "those familiar with medicinal herbs that specifically prevent *svābhāvika* diseases".<sup>31</sup>

27 "Notfallmedizin" in Hellwig 2008: 62.

28 *Suśrutasaṃhitā*, *Sūtrasthāna* 33.3: उपद्रवैस् तु चे जुष्टा व्याधयो यान्त्य अवार्यताम्। रसायनाद् विना वत्स तान् शृण्वेकमना मम ॥ – "Diseases that have become accompanied by complications, however, are incurable, except for through *rasāyana*. Listen carefully to what I say about them, son." Dalhaṇa interprets this to mean that *rasāyana* therapy can cure otherwise incurable disease. रसायनाद्धिनेति रसायनेन ह्यसाध्यो व्याधिरपि प्रायः साध्यते – "Except for through *rasāyana*' means that through *rasāyana*, even an incurable disease is cured as a general rule." See also Hellwig (2008: 48) on this passage and Dalhaṇa's commentary on it.

29 The *mahāvvyādhi*, as defined in *Suśrutasaṃhitā*, *Sūtrasthāna* 33.4–5 are a *arśa*, *aśmarī*, *bhagandara*, *kuṣṭha*, *mūḍhagarbha*, *prameha*, *udara* and *vātavyādhi*. Their untreatable complications include *atisāra*, *chardi*, *hikkā*,

*jvara*, *mūrcchā*, *prāṇamāṃsaksāya*, *śoṣa*, *śvāsa*, and *trṣṇā*. The disease groups mentioned in the *Suśrutasaṃhitā*'s *rasāyana* chapters include the *mahāvvyādhi* and also include *apasmāra*, *arśa*, *chardi*, *kṛmi*, *kuṣṭha*, *pāṇḍuroga*, *raktapitta*, *śoṇita*, *śoṣa*, *svarabheda* (as a symptom of *kuṣṭha*), *udara*, *unmāda*, and *viṣamajvara*.

30 *Suśrutasaṃhitā*, *Sūtrasthāna* 28.5: ध्रुवं तु मरणं रिष्टे ब्राह्मणैस्तत्किलामलैः। रसायनतपोजप्यतत्परैर्वा निवार्यते ॥

"When the sign of death has occurred, death is certain. It can possibly be averted by faultless brahmans, or by those fully engaged in *rasāyana*, austerities and repeated recitation of mantras." See also Hellwig 2008: 48.

31 Dalhaṇa on *Suśrutasaṃhitā*, *Sūtrasthāna* 28.5: रसायनपरा इति स्वभावव्याधिनिवारणविशिष्टोषधचिन्तकास्ते रसवीर्योषधप्रभावेन मरणं निवारयन्ति। Also see Hellwig (2008: 48) on this passage.

It should be noted that while *svābhāvika* conditions play a prominent role in the quoted statements in the *Suśrutasaṃhitā* and also are declared the subject of one of the four *rasāyana* chapters, the *svābhāvika* conditions are not often referred to in descriptions of the effects of *rasāyana* formulations.<sup>32</sup> Indeed, several *svābhāvika* conditions, namely hunger, thirst, and sleep, are not addressed at all. The topic of ageing, however, is prominent, particularly if we consider conditions such as loss of bodily strength, cognitive power or virility as subcategories of ageing. Overcoming death, by contrast, is only directly alluded to once in the context of the use of soma in *rasāyana* therapy, where soma is defined as a substance created for the eradication of ageing and death.<sup>33</sup>

Here, we can hardly speak of medical intervention, as the *Suśrutasaṃhitā* associates the use of soma as well as of divine herbs with overcoming the normal parameters of the human condition. *Rasāyana* with soma or divine herbs is described as an extreme intervention, both in terms of what patients undergo during treatment and in terms of expected outcomes. During treatment, patients experience an almost complete disintegration of their body, while successfully completed treatment results in the attainment of special powers and of a superhuman body.<sup>34</sup> The *Suśrutasaṃhitā* describes the spectacular outcome of *rasāyana* with soma thus:

The visionary man who makes use of the king of plants, Soma, wears a new body for ten thousand years. Neither fire, nor water, neither poison, blade nor projectile are powerful enough to take his life. He gains the strength of a thousand well-bred, sixty-year-old, rutting elephants. If he wants to go to the lands of northern legend, to the milky ocean, or even to the abode of the king of the gods, nothing can

<sup>32</sup> The *Suśrutasaṃhitā*'s *rasāyana* section is divided into four parts. Each part is headed by the phrase "I will now explain [a certain kind of] *rasāyana*, thus spoke Lord Dhantantari" (*athāto* [...] रसायनं व्याख्यस्यामः । यथोवाच भगवान् धन्वन्तरिः ॥). The different kinds of *rasāyana* are divided into the following: 1) *rasāyana* that pacifies all disorders (*sarvopaghātaśamanīyaṃ rasāyanam, Cikitsāsthāna* 27), 2) *rasāyana* for those desiring enhanced mental functioning and vitality (*medhāy-uṣkāmiyaṃ rasāyanam, Cikitsāsthāna* 28), 3) *rasāyana* for the prevention of self-arisen disease (*svabhāvvyādhipratīṣedhanīyaṃ rasāyanam, Cikitsāsthāna* 29), and 4) *rasāyana* for the cessation of afflictions (*nivṛttasantāpīyaṃ*

*rasāyanam, Cikitsāsthāna* 30). The headings only marginally reflect the contents of the last two chapters, which deal with the use of soma and celestial herbs, respectively. These are attributed with letting the consumer overcome the human condition altogether, gaining superhuman powers.

<sup>33</sup> See *Suśrutasaṃhitā, Cikitsāsthāna* 29.3. On the identification of the soma plant, see Falk 1989.

<sup>34</sup> This is discussed in more detail by Dagmar Wujastyk (*forthcoming*). See also White (1996: 26–27) for a translation of the passage describing the disintegration of the body and its gradual reshaping during soma *rasāyana*.

stand in his way. He is as beautiful as the god of love, as attractive as the second moon. He is radiant, and brings joy to the hearts of all creatures. He truly knows all sacred knowledge, with all its branches and sub-branches. He moves like a god through the whole world, with infallible power.<sup>35</sup>

Later medical works no longer describe the use of soma and divine herbs in *rasāyana* and generally describe less spectacular effects of treatment. However, the idea of attaining extended bodily powers continues to feature as a minor, but recurring theme in the *rasāyana* chapters of the medical works.

## 2. RASĀYANA IN ALCHEMICAL LITERATURE

WHEN CONDUCTING any study on the contents of Sanskrit alchemical texts, one is confronted with the problem that many of the works are only available in incomplete or unreliable editions, if indeed any edition is available at all. Omissions in the text are sometimes due to the condition and partial availability of the manuscripts the editions are based on. However, sometimes they occur due to a conscious decision on part of the editors, as for example in the case of the edition of the *Rasārṇavakalpa* by Roy and B. Subbarayappa (1976). Here, the editors left out a large chunk of the opening section (verses 1–52), because it presented the subject of the text in religious terms and they wished to highlight the scientific elements of the text.<sup>36</sup> In the case of one edition of the *Rasaratnākara*, we have the opposite problem: The editor seems to have added materials. The *Rasaratnākara* is a fairly large compendium and its materials are divided into five separate sections (*khaṇḍa*), each dealing with a different main subject. The second of these is the *Rasendrakhaṇḍa*, which is devoted to medicine. Manuscript evidence shows this section to consist of some twenty chapters, but the Kṣemarāja Śrīkṛṣṇādāsa edition (1909) gives seventy-one, including a chapter on *rasāyana* (chapter 69).<sup>37</sup> In light of how unreliable some of our source materials are, any

<sup>35</sup> Translation of *Suśrutasaṃhitā*, *Cikitsāsthāna* 29, 14–19 by Dominik Wujastyk (2003: 130). Compare also similar outcomes through *rasāyana* therapy with divine herbs in *Carakasamhitā*, *Cikitsāsthāna* 1.4.7.

<sup>36</sup> See Roy and B. Subbarayappa 1976: iii. This text was not used for this article.

<sup>37</sup> See Dominik Wujastyk (1984: 72) for an outline of the contents of the *Rasendrakhaṇḍa* based on manuscript evidence from the Wellcome Library collection. The contents of the *Rasendrakhaṇḍa* as presented in Kṣe-

marāja Śrīkṛṣṇādāsa's edition are briefly summarized in Meulenbeld 1999–2002: IIA, 654–655 and 661–662, which unfortunately does not mention the problem that many of the chapters probably stem from another work. Currently, a study of the digital copies of twenty-five *Rasaratnākara* manuscripts from the Berlin State Library collection is being undertaken by Madhusudan Rimal, a PhD student at the University of Alberta. Preliminary results confirm the findings in Dominik Wujastyk 1984.

statement made on what constitutes *rasāyana* in alchemical literature must therefore necessarily be considered somewhat tentative. Nevertheless, some broad trends in how the subject is dealt with in this literature are fairly evident.

Several alchemical works have chapters or large sections dedicated to the subject of *rasāyana*, while references to *rasāyana*, both as a characteristic of a substance or compound and as a procedure, can be found throughout. I have centred my examination of *rasāyana* on early alchemical texts, such as the *Rasahr̥dayatantra*, the *Rasār̥ṇava* and the *Rasaratnākara*, but have also consulted later texts such as the *Ānandakanda* and the *Rasaratnasamuccaya*.<sup>38</sup> These texts are linked through extensive intertextual borrowing. I also spot checked further alchemical works for occurrences of the term *rasāyana*, using a keyword search in the digital collections of SARIT and the Digital Corpus of Sanskrit (DCS).<sup>39</sup> Of the main works consulted, the *Rasahr̥dayatantra*, *Rasaratnākara*, *Ānandakanda* and *Rasaratnasamuccaya* have chapters presented as expositions on *rasāyana*. The relevant sections in these works are: Chapter nineteen of the *Rasahr̥dayatantra*; the *Rasāyanakhaṇḍa* of the *Rasaratnākara*; Part one (*amṛtīkaraṇaviśrānti*), chapters six, eight and nine of the *Ānandakanda*; and chapter twenty-six of the *Rasaratnasamuccaya*. In the case of the *Rasār̥ṇava*, its eighteenth and final chapter can be understood as a description of *rasāyana*, albeit under a different heading. It is presented as a description of how to achieve the transformation of the body (*dehavedha*), but the described procedures are similar to what is described in the *Rasahr̥dayatantra*'s final chapter on *rasāyana*. Large parts of the *Rasār̥ṇava*'s eighteenth chapter are also reiterated in the *Ānandakanda*'s sections on *rasāyana* (whose sixth chapter also starts under the heading of "*dehavedha*" rather than of "*rasāyana*"). It is worth noting that while the title of a chapter or part of a work may indicate the subject matter as *rasāyana*, not all content is necessarily dedicated to it.<sup>40</sup>

<sup>38</sup> The dating of alchemical works is very uncertain. According to Meulenbeld (1999–2002), the *Rasahr̥dayatantra* may be dated to about the tenth or eleventh century, the *Rasār̥ṇava* to about the twelfth and the *Rasaratnasamuccaya* to around the fifteenth or sixteenth century. The dates of the *Rasaratnākara* and *Ānandakanda* are even more uncertain. Hellwig's study of the relative chronology of alchemical works suggests that the *Vādakhaṇḍa* of the *Rasaratnākara* is placed among the oldest strata of alchemical works, while its *Rasakhaṇḍa* may be later (Hellwig 2009a: 62–64). The relation of the different parts of the *Rasaratnākara* to each

other is not yet resolved.

<sup>39</sup> The results from the keyword search, while very helpful for finding relevant passages, are limited by the fact that the number of alchemical works is small in SARIT, while the DCS contains a substantial number of alchemical works, but often only incomplete versions.

<sup>40</sup> For example, the eight chapters of the *Rasaratnākara*'s *Rasāyanakhaṇḍa* have different foci that are not always clearly connected to *rasāyana*. The first chapter describes the conditions needed for the intake of mercurials, and some preparation methods and tools for mercury processing. Chapter two

Outside of such chapters, the term “*rasāyana*” sometimes occurs in definitions of the characteristics of substances or formulations. The meaning of *rasāyana* here seems to follow the usage in medical literature of characterising substances and formulations as tonics that are health-inducing, fortifying, invigorating, or rejuvenating. See, for example, the *Rasārṇava*’s description of chalcopyrites (*mākṣika*):<sup>41</sup>

माक्षिकं तिक्तमधुरं मेहार्शःक्षयकुष्ठनुत्॥ कफपित्तहरं बल्यं योगवाहि रसायनम्॥<sup>42</sup>

Chalcopyrites, which are bitter and sweet, (act as) a catalyst and a tonic that destroys urinary disorders, piles, wasting disease and skin disorders, removes the humours phlegm and bile, and confers strength.

Or see the *Rasahrdayatantra*’s definition of the eight minerals (*mahārāsa*):

वैक्रान्तकान्तसस्यकमाक्षिकविमलाद्रिदरदरसकाश्च अष्टौ रसास्तथैषां सत्त्वानि रसायनानि स्युः॥<sup>43</sup>

Tourmaline, iron, copper sulphate, chalcopyrites, iron pyrites, cinnabar, shilajit, and calamine: these eight substances and their essences are tonics.<sup>44</sup>

gives instructions on how to prepare the body for *rasāyana*, and then lists mercurial elixirs in liquid form that may be used for *rasāyana*. Chapter three provides recipes for mercurial pills used in *rasāyana*, but also in mercury processing procedures, while chapter four describes mercurial compounds, oils and powders. Chapter five describes unguents against wrinkles and grey hair for external application, oral intake and nasal application. Chapter six and seven are dedicated to the subjects of virility and sexual stamina. And finally, chapter eight describes how to acquire a divine body and how to turn base metals into gold. Of these, chapters one to four seem to follow the theme of *rasāyana* most closely.

<sup>41</sup> I use “chalcopyrites” for *mākṣika* to distinguish it from *vimāla*, another kind of pyrites, here rendered as “iron pyrites.” This identification is, however, uncertain.

<sup>42</sup> *Rasārṇava* 7.14cd–14ef. The DCS notes parallel passages in *Rasamañjarī* 3.84, *Rasaratnasamuccaya* 1.213 and *Yogaratanākara* 1.166. One could also read the text as:

“Chalcopyrites are bitter and sweet, and destroy urinary disorders, piles, wasting disease and skin disorders. They remove the humours phlegm and bile and confer strength. They are a catalyst and a *rasāyana*.” In this case the question is left open as to what the characteristics of a *rasāyana* would encompass. See Hellwig (2009b: 460) on the concept of “*yogavāhin*” as a substance’s characteristic of assimilating and strengthening the action of any substance it is grouped with. References to this term are already found in the earliest medical works (see *Carakaśaṃhitā*, *Vimānasthāna* 1.16, *Suśrutasaṃhitā*, *Sūtrasthāna* 45.142, *Aṣṭāṅgasamgraha*, *Sūtrasthāna* 12, 25) and are often juxtaposed with the described substances’ action as a *rasāyana*.

<sup>43</sup> *Rasahrdayatantra* 9.4.

<sup>44</sup> The identification of several of the eight substances is less certain than my translation implies. I have generally oriented myself on Nadkarni 1954, sometimes updating the English term.

Consider also the *Rasamañjarī*'s description of a multi-component formulation:<sup>45</sup>

कासश्वासमहातिसारशमनं मन्दाग्निर्संदीपनं धातोर्वृद्धिकरं रसायनवरं नास्त्यन्यदस्मात्प-  
रम् ॥<sup>46</sup>

It calms cough, dyspnoea, and severe diarrhoea, kindles weak digestive fire and it stimulates the growth of the tissues. It is the best tonic, there is no other better than it.

More often, the term *rasāyana* is used to denote an action, or a series of actions, perhaps in the sense of Fenner's "acts of improvement." When the term occurs outside of chapters dedicated to *rasāyana*, it is not always clear what these actions entail. See, for example, *Rasārṇava* 7.44cd, where the use of copper sulphate (*sasyaka*, *tuttha*) as part of *rasāyana* is attributed with anti-ageing effects.

रसायने तु योग्यः स्याद्वयःस्तम्भकरो भवेत् //

If applied in *rasāyana*, it halts ageing.

This passage could be understood to propose the use of copper sulphate for *rasāyana* treatment or as part of *rasāyana* regimen in the medical sense, i.e., in this case as an anti-ageing treatment or regimen. The difference to the *rasāyana* treatment or regimen described in medical works would then simply lie in the use of copper sulphate as the *rasāyana* substance, since copper sulphate was known to the early medical authors, but not used in the context of *rasāyana*. I have also not found it as a *rasāyana* ingredient in the examined later Sanskrit medical works. However, *rasāyana* could here also refer to the regimen and procedures associated with the intake of mercurial elixirs as the culmination of the alchemical endeavour. In that context, it would be one of many preparations taken during the *rasāyana* process rather than a central substance used on its own. However, while the *Rasārṇava* describes the use of copper sulphate in various metallurgical contexts, it does not feature its intake in its eighteenth chapter.<sup>47</sup>

Notably, none of the examined works use the term "*rasāyana*" to denote the subject of their expositions as a whole. We find terms such as "*rasavidyā*" or "*rasaśāstra*" as umbrella terms for the discipline of alchemy instead, though one

<sup>45</sup> The *Rasamañjarī* by Śālinātha is a ca. fifteenth-century alchemical work. See Meulenbeld (1999–2002: IIA, 636–638) for a summary of its contents.

<sup>46</sup> *Rasamañjarī* 6.313. This is part of a lar-

ger description of the effects, which begins in 6.312.

<sup>47</sup> *Rasārṇava* 17.75–77, for example, describes the use of *tuttha* in the colouring of lead (a step in aurification).



must also keep in mind that the different works offer differing versions of what elements their discipline comprises.<sup>48</sup>

In the following, I will present a detailed description and analysis of the *rasāyana* chapter of the *Rasaḥṛdayatantra* (RHT), which, as the earliest alchemical text we have access to, may serve as a base text for comparison with the presentation of *rasāyana* in alchemical and medical literature.

#### RASĀYANA IN THE RASAḤṚDAYATANTRA

The *Rasaḥṛdayatantra* by Govinda consists of 506 verses that are divided into nineteen chapters.<sup>49</sup> Laying the groundwork for the final stages of practice, chapters one to seventeen introduce the substances used in the alchemical operation, with a particular focus on the central substance mercury, and delineate the metallurgical processes each substance undergoes before it is used in the making of the mercurial elixirs. Chapter eighteen describes the use of these altered substances in processes for transmuting base metals into gold or silver. The nineteenth chapter is the last chapter in the work, and it presents the culmination of alchemical practice: the *rasāyana* process and its effects.<sup>50</sup>

The chapter begins with:

अधुना प्रोक्तानपि वक्ष्यामि रसायने योगान् /<sup>51</sup>

I will now speak of the mentioned formulations in the context of *rasāyana*.

It then describes a series of activities and recipes, broadly consisting of the preliminary treatment of cleansing the body (*śodhana*) through purgation, sweating, and emesis; a process called “the preparation of the body” (*kṣetrīkaraṇa*)

<sup>48</sup> The term “*rasavidyā*” is found in *Rasaḥṛdayatantra* 19.79 and *Rasaratnasamuccaya* 6.27, “*rasaśāstra*” in *Rasaratnasamuccaya* 6.61. A further term, *rasavāda* (“the doctrine of mercury,” e.g., *Rasārṇava* 1.44) could also be understood as an umbrella term for alchemy. However, it seems to mostly be used as a subcategory, as in *Rasendracintāmaṇi* 7.19, where it is juxtaposed with *dhātuvāda* (“the doctrine of metals”) and *viṣavāda* (“the doctrine of poisons”). The *Rasendracintāmaṇi* is attributed to Ḍhuṇḍukanātha and dates to about the fifteenth or sixteenth century according to Meulenbeld (1999–2002: IIA,

705).

<sup>49</sup> The edition and translation by B. V. Subbarayappa et al. (*Rasaḥṛdayatantra*) is divided into twenty-one chapters. It does not contain extra materials, but splits chapter nineteen into three separate chapters. Here, the edition digitized by Oliver Hellwig in the Digital Corpus of Sanskrit is used (Hellwig 1999–). For information on the dating of this text, refer to footnote 38.

<sup>50</sup> A partial translation of this chapter was published by B. V. Subbarayappa et al. (*Rasaḥṛdayatantra*).

<sup>51</sup> *Rasaḥṛdayatantra* 19.1cd.

involving the intake of herbal and mercurial elixirs; and the intake of a final (?) mercurial elixir that triggers the ultimate transformation of the practitioner's body.<sup>52</sup> However, these stages are not well distinguished from each other and it is not always clear whether the described herbal and mercurial elixirs are meant to be taken in succession or whether they are alternatives to each other.

### Cleansing

The internal cleansing of the body through purgation etc., which is very similar to what chapters in medical works prescribe for preparing for medical *rasāyana* treatment, is not clearly distinguished from the *kṣetrīkaraṇa* process and may, in fact, form part of it. According to *Rasaḥṛdayatantra* 19.2–4, the cleansing first involves three days of drinking clarified butter with rock salt in the morning, followed by three days of taking a decoction of screw pine (*ketakī*).<sup>53</sup> The body should be made to sweat and then thoroughly cleansed with black hellebore (*kaṭurohīnī*). Once the body has thus been rid of the humoral substance “phlegm” (*śleṣman*), the persons undergoing treatment recover from the cleansing during three days in which they may eat barley and clarified butter. The following verses (RHT 19.5–7) may describe either an alternative to the above, or a continuation of the cleansing regimen for the next three days, in which one would drink hot water with chebulic myrobalan, rock salt, emblic myrobalan, black pepper, sweet flag, jaggery, and false black pepper in the morning and also turmeric, dried ginger and long pepper.<sup>54</sup> This, the author promises, cleanses the body and makes it strong through overcoming any pathological combination of the humours. This passage is echoed in *Rasārṇava* 18.3–7, while a similar, though not identical, list is found in *Rasaratnākara Rasāyanakhaṇḍa* 1.4–6.<sup>55</sup>

The *Rasaḥṛdayatantra*'s passage also has a number of parallels in the *rasāyana* chapters of medical works. Its list of substances used for internal cleansing corresponds closely with that of *Carakasamhitā*, *Cikitsāsthāna* 1.1.25–28, though it uses

<sup>52</sup> White (1996: 266) also proposes “making (oneself master of) the field” for *kṣetrīkaraṇa*. Hellwig's dictionary does not have a separate entry for *kṣetrīkaraṇa*, but explains it as “Vorbereitung des Körpers auf den *dehavedha*” – “preparation of the body for *dehavedha*” in the entry on “*kalkabandha*,” the fixation of mercury into a paste (Hellwig 2009b: 188).

<sup>53</sup> *Rasaḥṛdayatantra* 19.2.

<sup>54</sup> The Sanskrit terms for these used in the *Rasaḥṛdayatantra* are: *pathyā* (chebulic myrobalan), *saindhava* (rock salt), *dhātrī* (emblic myrobalan), *marica* (black pepper),

*vacā* (sweet flag), *guḍa* (jaggery), *viḍaṅga* (false black pepper), *rajanī* (turmeric), *śuṅṭhī* (dried ginger) and *pippalī* (long pepper).

<sup>55</sup> The *Anandakanda*'s detailed description of preparing the body in 1.6 mentions the use of *ketakī* (screw pine) (1.6.18–19 and 21); *vacā* (sweet flag), and *viḍaṅga* (false black pepper) (1.6.23); and *guḍa* (jaggery) (1.6.24). The *Rasaratnasamuccaya*'s twenty-sixth chapter, which starts with the definition of *rasāyana* from *Carakasamhitā*, *Cikitsāsthāna* 1.1.7–8, does not include instructions on cleansing the body before *rasāyana*.

different names for them: *pathyā* instead of *harītakī*, *dhātrī* instead of *āmalaka*, *śuṅṭhī* instead of *viśvabheṣaja*, and it also adds *marica* (black pepper).<sup>56</sup> While the *Rasārṇava*, the *Rasaratnākara* and the *Ānandakanda* also refer to the use of screw pine and the *Rasārṇava* includes hellebore, none of the examined medical works mention either substance.<sup>57</sup> However, they do note that cleansing should be undertaken after the body has been oiled and made to sweat.<sup>58</sup> This may explain the *Rasahrdayatantra*'s use of screw pine, which can act as a sudative, while the use of hellebore may be seen as an alternative or additional purgative. The *Carakasamhitā* and the later medical works following its prescriptions on cleansing techniques also recommend a diet of barley and clarified butter for the three days following the cleansing.

### Preparing the Body (*kṣetrikaraṇa*)

The *Suśrutasamhitā* emphasises that *rasāyana* treatment without prior cleansing of the body cannot be successful, comparing such a partial treatment to dyeing a stained cloth. Its argument about the efficacy of treatment is reiterated in many of the later medical works.<sup>59</sup> The *Rasahrdayatantra* concurs in the importance of assuring the efficacy of *rasāyana* treatment through proper preparation, but also highlights the issue of safety:

अकृतक्षेत्रीकरणे रसायनं यो नरः प्रयुञ्जीत ।  
तस्य क्रामति न रसः स रसः सर्वाङ्गदोषकृद्भवति ॥<sup>60</sup>

Mercury will not penetrate the body of one who undertakes *rasāyana* without having prepared his body. The mercury will cause damage to all parts of the body.

<sup>56</sup> *Carakasamhitā*, *Cikitsāsthāna* 1.1.25-28 lists *harītakī* (chebulic myrobalan), *saindhava* (rock salt), *āmalaka* (emblic myrobalan), *guḍa* (jaggery), *vacā* (sweet flag), *viḍaṅga* (false black pepper), *rajanī* (turmeric), *pippalī* (long black pepper), and *viśvabheṣaja* (dried ginger). Compare also *Aṣṭāṅgahrdayasamhitā*, *Uttarasthāna* 39.21 and *Aṣṭāṅgasamgraha*, *Uttarasthāna* 49.14, which list *harītakī* (chebulic myrobalan), *āmalaka* (emblic myrobalan), *saindhava* (rock salt), *nāgara* (dried ginger), *vacā* (sweet flag), *haridrā* (turmeric), *pippalī* (long black pepper), *vella* (false black pepper) and *guḍa* (jaggery) as the substances used for cleansing. The same list is found in *Siddhayoga* 69.4-5.

<sup>57</sup> See *Rasārṇava* 18.3 and *Rasaratnākara Rasāyanakhaṇḍa* 1.5 on the use of screw pine, and *Rasārṇava* 18.5 on the use of hellebore.

<sup>58</sup> *Aṣṭāṅgahrdayasamhitā*, *Uttarasthāna* 39.3, *Aṣṭāṅgasamgraha*, *Uttarasthāna* 49.3, and *Siddhayoga* 69.4 also mention bloodletting as a cleansing method.

<sup>59</sup> See *Suśrutasamhitā*, *Cikitsāsthāna* 27.3-4. *Carakasamhitā*, *Cikitsāsthāna* 1.4.36-37 also states the importance of cleansing the body prior to *rasāyana* treatment. Works that quote the *Suśrutasamhitā*'s comparison with dyeing a stained cloth include *Aṣṭāṅgasamgraha* (*Uttarasthāna* 49.4-5), the *Siddhayoga* (69.6) and the *Cakradatta* (66.2).

<sup>60</sup> *Rasahrdayatantra* 19.8.

None of the medical works warn of potential damage caused by *rasāyana* substances. This may partly be due to the nature of substances used: mercury is arguably more toxic than the classical medical *rasāyana* substances.<sup>61</sup> The use of mercury as a *rasāyana* ingredient is attested relatively late in ayurvedic medicine, occurring first in a single recipe in the ca. seventh-century *Aṣṭāṅgahṛdayasaṃhitā* and *Aṣṭāṅgasamgraha*.<sup>62</sup> Mercury is found more often as a *rasāyana* ingredient in later medical works, starting with the eleventh-century *Cakradatta*, but typically not as a central ingredient.<sup>63</sup> Ideas concerning the need to purify substances before they are used medicinally enter medical works around the time the first alchemical works articulate the concept of purifying or perfecting (*śodhana*) mercury and other substances.<sup>64</sup> However, it should be noted that even those medical works that refer to the various procedures for perfecting substances do not explicitly associate the procedures with making the use of mercury or other substances safe for medical use.<sup>65</sup>

To return to the procedures outlined in the *Rasaḥṛdayatantra*, the cleansing of the body is followed with a period of regaining strength through taking various grain- and pulse-based liquids. From the text it appears that this is the moment in which the preparation of the body (*kṣetrīkaraṇa*) concludes.<sup>66</sup> But what follows is a description of various deodar cedar oil preparations that might be understood to still be part of *kṣetrīkaraṇa*, either as an alternative to the preceding or as an addition. The first recipe (RHT 19.10–11) is attributed with first cleansing out the abdomen, and then effecting an increase in beauty and mental vigour and allaying all disease, until finally, the body becomes immortal (*amaravapus*) and endowed with great vital power (*mahātejas*). The second, slightly different recipe

61 Note, however, the use of the poisonous leadwort (*citraka*) as a *rasāyana* substance in *Aṣṭāṅgahṛdayasaṃhitā*, *Uttarasthāna* 39.

62 *Aṣṭāṅgahṛdayasaṃhitā*, *Uttarasthāna* 39.36 and *Aṣṭāṅgasamgraha*, *Uttarasthāna* 49.392. See Dagmar Wujastyk 2013: 18.

63 See Dagmar Wujastyk 2016 on the use of mercury as a *rasāyana* substance in medicine.

64 Procedures for purifying (*śodhana*) mercury are already described in the ninth-century *Kalyāṇakāraka*, and some procedures are also described in the eleventh/twelfth-century *Varṅgasenasamhitā*, while the thirteenth/fourteenth-century *Śārṅgadharasaṃhitā* gives more detailed expositions on the topic. See Dagmar Wujastyk 2013.

65 The possibility of poisoning with unprocessed metals and minerals is first discussed in the sixteenth-century *Bhāvaprakāśa* in the “chapter on the rules concerning the purification and calcination of metals, etc.” (*dhātuvādisōdhanamāraṇavidhiprakaraṇa*) in the *Pūrvakhaṇḍa*. However, even though various methods of processing mercury are described, there is no discussion on the properties of unprocessed mercury here.

66 *Rasaḥṛdayatantra* 19.9 reads: इति शुद्धो जातबलः शाल्योदनयावकाख्यमुद्गरसः। क्षेत्रीकृतनिजदेहः कुर्वीत रसायनं विधिवत्॥ “Thus, one who is cleansed, who has become strong through boiled rice, barley grains and mung bean soup, and whose body has been prepared, should undertake *rasāyana* according to rule.”

(RHT 19.12) has less dramatic outcomes: it promises the cure of eye disorders. The third recipe (RHT 19.13) is for eliminating colds (*pīnasa*), and also the group of skin diseases (*kuṣṭha*), while the fourth (RHT 19.14) details the use of deodar cedar juice with different carrier substances (either clarified butter, oil, jaggery or honey) to overcome diseases caused by each of the humoral substances.

Deodar cedar is not featured as an ingredient in any of the Sanskrit medical works' *rasāyana* chapters, though it is already found in other contexts in the *Suśrutasaṃhitā*, *Aṣṭāṅgahr̥dayasaṃhitā* and *Aṣṭāṅgasamgraha*.

After some dietary advice (RHT 19.15), instructions on which kinds of mercury should be consumed follow (RHT 19.16–20). These begin with “Afterwards” (*tadanu*), which may either refer to the dietary advice, or otherwise may indicate that the intake of mercury follows on from the use of the deodar preparations. In the *Rasārṇava* (18.9–10), the protracted use of deodar cedar is clearly followed by the intake of processed mercury. In the *Ānandakanda*, deodar is featured in 1.6.25–26 as the last of the preparatory preparations before *rasāyana* with processed mercury (*āroṭa*) begins. In any case, *Rasahr̥dayatantra* 19.18–20 (and also *Rasārṇava* 18.10) place the use of the mercurials in the context of *kṣetrīkaraṇa* again.

Here, we have another connection with medical literature. The *Rasahr̥dayatantra*'s recipe reads thus:

माक्षिकशिलाजतुलोहचूर्णपथ्याक्षविडङ्गघृतमधुभिः ।  
संयुक्तं रसमादौ क्षेत्रीकरणाय युञ्जीत ॥  
इति कल्कीकृतसूतं घनकान्तमधुघृतादिसंयुक्तम् ।  
भुक्तवामरतां गच्छेत्क्षेत्रीकरणं प्रधानमिदम् ॥<sup>67</sup>

In the beginning, one should apply mercury mixed with chalcopyrites, shilajit, iron filings, chebulic and belleric myrobalans, false black pepper, clarified butter, and honey for the purpose of preparing the body. Thus, having eaten the mercury that has been made into a paste mixed with mica, iron, honey, clarified butter etc., he attains immortality. This is the best preparation of the body.

Compare this ingredient list with the recipe in *Aṣṭāṅgahr̥dayasaṃhitā*, *Uttarasthāna* 39.161 and *Aṣṭāṅgasamgraha*, *Uttarasthāna* 49.392:

शिलाजतुक्षौद्रविडङ्गसर्पिलोहाभयापारदताप्यभक्षः ।  
आपूर्यते दुर्बलदेहघातुस्त्रिपञ्चरात्रेण यथा शशाङ्कः ॥

The depleted tissues of the body of one who eats shilajit, honey, false black pepper, clarified butter, iron, chebulic myrobalan, mercury, and pyrites are replenished within fifteen nights like the moon.

<sup>67</sup> *Rasahr̥dayatantra* 19.19–20.

The same wording appears in *Rasārṇava* 18.14 and in *Rasaratnasamuccaya* 26.13. In the *Rasārṇava*, it is followed by a recipe of mica and iron and various herbal ingredients and animal products. Using similar phrasing to *Rasahṛdayatantra* 19.20, the *Rasārṇava*'s mica and iron recipe is then described as the best *kṣetrīkaraṇa* through which one would attain immortality.<sup>68</sup> In the medical works' version, mercury appears only as one of several ingredients, not as the main one, as in the *Rasahṛdayatantra*. And significantly, the promised effects do not include the attainment of immortality. Also, the replenishment of the bodily tissues seems to be understood as an end in itself in the medical works, whereas both the *Rasahṛdayatantra* and the *Rasārṇava* place the recipe within the context of readying the body through *kṣetrīkaraṇa*, implying a further step.

The next section of the *Rasahṛdayatantra* is concerned with various mica (*ghana*, *abhra*, *gagana*) preparations (RHT 19.21–27) and mica and iron compounds (RHT 19.28–36), including one with a certain kind of processed mercury (*āroṭa*) applied in *kṣetrīkaraṇa*. Mica is presented as a substance that prolongs life: RHT 19.23 speaks of a person living for one hundred years. However, the treatise also warns of the detrimental effects of the wrong kind of or badly prepared mica, which would cause decrepitude and death. Mica with iron is said to remove obesity, various eye diseases, swellings, pain in the ears and nose, piles, haemorrhoids, urinary disorders and grey hair.<sup>69</sup> Taken for a year, it wards off death and ageing. The section concludes with the following statement:

एषामेकं योगं क्षेत्रीकरणार्थमादितः कृत्वा । संवत्सरमयनं वा निःश्रेयससिद्धये योज्यम् ॥<sup>70</sup>

Having first made one of these compounds for the purpose of preparing the body, one should use it for a year or half a year for the attainment of ultimate bliss.

In medical literature, mica is first mentioned as a *rasāyana* ingredient in the *Cakradatta*, where it is used as part of the *Cakradatta*'s complicated *rasāyana* recipe for "immortality-essence iron" (*amṛtasāralauha*). In this context, the purification and calcination of mica are briefly described as involving maceration with herbal juices and sour gruels, baking in a pit, and bringing the mica to a glow over a fire and then dipping it in milk and washing it.<sup>71</sup> This is already more complicated

68 *Rasārṇava* 18.15ef: भुक्त्वा गच्छेदमरतां क्षेत्रीकरणमुत्तम ॥ "Having eaten it, one would attain immortality. It is the best preparation of the body."

69 See *Rasahṛdayatantra* 19.32.

70 *Rasahṛdayatantra* 19.36. The preparations alluded to are *āroṭa* with mica and two types

of iron (RHT 19.35)) and mica with iron, mercury, gold and some organic substances (RHT 19.35).

71 *Cakradatta* 66.92–97. The complete procedure for making *amṛtasāralauha* is described in 66. 34–125.

than what is described in the *Rasahrdayatantra* (19.21), which merely states that a pre-processed mica should be made red hot over a fire and then sprinkled with camphorweed (*surabhī*) and milk. The *Vaṅgasenasamhitā*'s *rasāyana* chapter has quite a long section on various mica preparations.<sup>72</sup> However, there is no overlap at all with the *Rasahrdayatantra*'s mica recipes.

The next section of the *Rasahrdayatantra*'s *rasāyana* chapter (RHT 19.37–58) discusses what kind of mercury should be used for *rasāyana*, namely mercury that has undergone processing and has amalgamated with other metals and minerals; what kind of mercury ought not to be used (mercury amalgamated with poison, tin or lead); what happens if such mercury is eaten (skin diseases and trembling); the processes of mercury “digesting” other substances and how this relates to the dosage of the end product; the regimen and diet during the period the mercurial is taken; what happens if these rules are not followed; the symptoms of not being able to digest mercury (faintness, sleepiness, fever, burning sensations, sharp abdominal pain, apathy and destruction of the body); and how to treat the arising disorders.

Within this section, RHT 19.49 offers an interesting interlude, as it seems to describe mercurial-enhanced meditation practice that culminates in arriving at a state called “*rasānanda*,” “bliss of mercury”:

परमे ब्रह्मणि लीनः प्रशान्तचित्तः समत्वमापन्नः ।  
आश्वासयन्त्रिवर्गं विजित्य रसानन्दपरितुप्तः ॥

He has become absorbed in the highest being. With a stilled mind, he has achieved equanimity. Controlling his breathing, having mastered the three goals, he has become completely content in the bliss of mercury.

#### *The Conclusion of the Rasāyana Process*

Finally, the successful intake of a mercurial elixir with sulphur and its outcomes are described (RHT 19.61–64). The effects include producing beautiful offspring, enhanced virility, rejuvenation, increased mental power and bodily strength, and prolonged life-span. There is a sense of gradual improvement over time. The conclusion of the *rasāyana* process is described thus:

प्राप्तस्य दिव्यबुद्धिं दिव्याश्च गुणाः प्रवर्धन्ते ॥ ६२cd ॥  
एवं रससंसिद्धो दुःखजरामरणवर्जितो गुणवान् ।  
खेगमनेन च नित्यं संचरते सकलभुवनेषु ॥ ६३ ॥

<sup>72</sup> *Vaṅgasenasamhitā* 77.121–238.

दाता भुवनत्रितये स्रष्टा सोऽपीह पद्मयोनिरिव ।  
भर्ता विष्णुरिव स्यात्संहर्ता रुद्रवद्भवति ॥ ६४ ॥

The divine intelligence and divine qualities of one who has attained them grow further. (62cd)

One who has thus become fully perfected through mercury, who has left behind misery, ageing and death and is endowed with good qualities, continually roams all the worlds through moving in the sky. (63)

He will also become a giver and creator here in the triad of worlds, like the lotus-born; one who maintains [the world] like Viṣṇu; and a destroyer like Rudra. (64)

The chapter does not end here, but continues with recipes for several pills: a mercurial pill called “immortal beauty” (*amarasundarī*) for protection against weapons and diseases; a pill called “raising the dead” (*mṛtasamjīvanī*) against injuries, fear, grief, disease, ageing, unhappiness, and indeed, for raising the dead; three kinds of “diamond pill” (*vajrinīguṭikā*), said to confer the strength of nine elephants, make the body indestructible and free it from death, ageing and disease;<sup>73</sup> and one “roaming the sky pill” (*khecarīguṭikā*), through which one would become “highly revered by gods, demons and perfected beings, beginning with Indra”.<sup>74</sup> All of these are either placed in the mouth or worn as an amulet.

#### ON THE STRUCTURE OF THE RASĀYANA PROCESS

As we have seen, the *Rasaḥṛdayatantra*'s *rasāyana* chapter shares a number of features with the *rasāyana* and *dehavedha* chapters of the other examined alchemical works, both in terms of general structure of the *rasāyana* process and the required conditions for it. All the examined works prescribe cleansing procedures that precede the intake of the elixirs, though there are significant differences in how much detail is given on how to proceed. *Ānandakanda* 1.6.4–26 gives the most detailed description of the applied procedures, presenting them as “five procedures” (*pañcakarman*) of stimulating digestion (*pācana*), oleation (*snehana*), sweating (*svedana*), emesis (*vamana*) and purgation (*virecana*), to which procedures for eradicating disorders associated with vitiated flavours are added.<sup>75</sup> The *Rasaratnākara*'s depiction of cleansing procedures (in *Rasāyanakhaṇḍa* 1.4–8) is

73 *Rasaḥṛdayatantra* 19.74: एषा मुखकुह-  
रगता कुरुते नवनागतुल्यबलम् । तद्द्वपुरपि दुर्भेद्यं  
मृत्युजरारोगनिर्मुक्तम् ॥

74 *Rasaḥṛdayatantra* 19.76cd: देवासुरसिद्धगणैः  
पूज्यतमो भवति चेन्द्रायैः ॥

75 Sweating and oleation are more typically considered preliminary treatments in ayurvedic texts, whose “five procedures”



comparatively brief, considering that the *Rasāyanakhaṇḍa* is the longest and most elaborate presentation of the subject of *rasāyana* with its 951 verses. It is similar to the *Ānandakanda*'s presentation of the subject (in 1.6.18–25) in that it specifies what the body is cleansed of, namely disorders due to salty taste (*loṇadoṣa*), to sour taste (*amladoṣa*) and to all kinds of disorders (*doṣa*), categories that are not further explained. And finally, the *Rasaratnasamuccaya*'s *rasāyana* chapter does not set out a method of commencing *rasāyana* therapy with cleansing treatments, only very briefly referring to cleansing through “five procedures” in 26.44.

Most of the examined alchemical works also include the concept of “the preparation of the body” (*kṣetrīkaraṇa*) in their presentation of *rasāyana*, a procedure that is not always clearly differentiated from the cleansing procedures, but that often includes the intake of mercurials, particularly a kind of mercury preparation called “*āroṭa*”.<sup>76</sup> The concept of *kṣetrīkaraṇa* deserves a study of its own,<sup>77</sup> but here, it will perhaps suffice to note that the *Rasahrdayatantra* associates *kṣetrīkaraṇa* with a wide range of effects, including overcoming disease, getting rid of wrinkles and grey hair, prolonging life, or even attaining immortality in a physical body. And even further: As we have seen, RHT 19.36 claims that the described *kṣetrīkaraṇa* preparations, taken for half a year to a year, eventually lead to the attainment of ultimate bliss. This suggests, therefore, that a substance used for *kṣetrīkaraṇa*, and one used following *kṣetrīkaraṇa* may be one and the same, the difference lying only in the amount of time they are taken. In any case, it is notable that the attainment of immortality is considered part of “preparing the body,” suggesting that it is not the final aim in the alchemist's endeavour. The step beyond immortality would appear to be the attainment of

for purification comprise emesis, purgation, two different types of enema and the use of errhines. The disorders mentioned in the *Ānandakanda* here are “disorders caused by saline flavour” (*kṣāradoṣa*) (1.6.20), “disorders caused by sour flavour” (*amladoṣa*) (1.6.21 and 23), worms (*krimi*) (1.6.24) and “all diseases” (*sarvaroga*) (1.6.26).

<sup>76</sup> The *Rasaratnasamuccaya* does not mention *kṣetrīkaraṇa* in its *rasāyana* chapter (chapter 26), but makes mention of it in 11.66 in the context of the purified mercury preparation called “*āroṭa*” as the most suitable “preparation of the body.” Similarly, the *Rasārṇava* (18.10–11) associates *kṣetrīkaraṇa* with the intake of *āroṭa*, though also with a number of other mercurial preparations (see 18.16, 18–19 and 21). The

*Rasaratnākara*'s *Rasāyanakhaṇḍa* makes a fairly clear distinction between cleansing procedures and *kṣetrīkaraṇa*, as it describes cleansing procedures in chapter 1.4–8 and *kṣetrīkaraṇa* (with mica) in chapter 2.2–3.

<sup>77</sup> The concept of *kṣetrīkaraṇa* is briefly discussed by White (1996: 270–271), where he states that *kṣetrīkaraṇa* “refers to the preparation of the body for the medicines that will be absorbed in the treatment per se” in medical rejuvenation therapy. The source for this was a personal communication from Siddhinandan Misra (White 1996: 493, n. 33). However, it should be noted that the term does not occur in any of the *rasāyana* chapters of the Sanskrit medical works examined for this article.

a god-like status, as described in RHT 19.63–64. However, we also need to make note of the recipes for the various pills at the end of the chapter, which offer differing effects. These point to the possibility of multiple aims of alchemists rather than one single final aim.

Since the order of sequence is not always clear in the *Rasahṛdayatantra*'s presentation of *rasāyana*, one cannot always discern whether all of the described formulations should be taken one after the other, or whether some formulations are perhaps alternatives to each other. This is similar in the *Rasārṇava*'s eighteenth chapter. The recipes in the *Rasaratnākara*'s *Rasāyanakhaṇḍa* and in the *Rasaratnasamuccaya*'s twenty-sixth chapter seem to be alternatives to each other, rather than part of a multi-step process. In this, they resemble the *rasāyana* procedures described in the medical works, which describe the intake of a single tonic over a period of time. By contrast, the *Ānandakanda* (1.8) lays out a very clear course of action, with the intake of one elixir clearly following another in an established order. Whether they use a single or multiple formulations, both alchemical and medical *rasāyana* seem to happen over a sustained period of time, often with months or even years passing.

#### ON THE EFFECTS OF RASĀYANA

If we consider the various outcomes of *rasāyana* in the *Rasahṛdayatantra* and the other alchemical works, we can see quite different emphases. The *Rasahṛdayatantra*'s *rasāyana* leads to different outcomes that include longevity, strength, beauty, mental vigour, getting rid of wrinkles and grey hair, freedom from disease, and great vital power: These are all also found as effects of *rasāyana* therapy in the medical works. The more specific diseases mentioned include eye disorders (*nayanavikāra*), including classes of eye disorders called *paṭala*, *kāca* and *timira*, colds (*pīnasa*), serious skin diseases (*kuṣṭha*), diseases arising through disorders of the humoral substances wind, bile and phlegm (*vāta*, *pitta*, *kapha*), swellings (*arbuda*), ear and nose pain, piles (*arśa*), anal fistula (*bhagandara*), and urinary (*meha*) and spleen (*plīha*) disorders. All of these are also described in the medical works' *rasāyana* chapters, with the exception of the *kāca* and *paṭala* classes of eye disorders (compare Table 3. in the Appendix). Generally speaking, the alleviation of diseases seems a minor concern in the *Rasahṛdayatantra*'s depiction of *rasāyana*, though it is featured in the context of *kṣetrikaraṇa* to some extent. Similarly, the *Rasārṇava*'s eighteenth chapter mentions medical cures only in passing in verse 56, referring to a mercury-mica formulation as an agent for overcoming disease in general, strengthening the body and increasing semen production. Much more detail is given on diseases arising through the improper use of mercurials (verses 136–140). In the *Rasaratnākara*'s *Rasāyanakhaṇḍa*, disease is also hardly mentioned at all. Instead, the general focus is on rejuvenation and extreme longevity; cre-

ating a superhuman, invincible body that is extremely hard (*dārḍhya*) or like a diamond (*vajrakāya*); and attaining divinity or at least a comparable condition. In a very few instances, formulations are attributed with eradicating disease in general, and in three cases, with curing specific disorders.<sup>78</sup> And chapters six and seven are devoted to re-establishing or enhancing virility and sexual stamina (*vājīkaraṇa*, *vīryastambhana*). While *vājīkaraṇa/vṛṣya* formally constitutes a separate subject area as one of the eight branches of Ayurveda, there is an increasing amount of overlap between medical *rasāyana* and *vājīkaraṇa* both in terms of aims and of formulations in later medical works.<sup>79</sup>

The *Rasaratnasamuccaya*'s *rasāyana* chapter also emphasises the rejuvenative and life-prolonging effects of its formulations, but gives equal weight to their general health benefits, and several times mentions the eradication of diseases linked with ageing. Its fairly extensive list of specific disease groups tackled by its formulations includes serious skin diseases (*kuṣṭha*), wasting diseases (*yakṣmagada*), jaundice (*kāmala* and *halīmaka*), anaemia (*pāṇḍu*), swellings (*śoṣa*), constipation (*ānāha*), intestinal inflammation (*grahaṇī*), consumption (*śoṣa*), cough (*kāsa*), fever (*jvara*), all kinds of urinary disorders (*prameha*), hiccups (*hikkā*), erysipelas (*visarpa*), abscesses (*vidradhi*), itching (*kaṇḍu*), falling sickness (*apasmāra*) and disorders connected to humoral imbalance. With the exception of itching (*kaṇḍu*), which is not mentioned in any of the medical works' *rasāyana* chapters, all of these categories of disorders also occur in the early medical works' *rasāyana* chapters. The *Ānandakanda*'s presentation of the *rasāyana* process, by contrast, contains little on the health benefits of its elixirs. There is one recipe for a mercury preparation that is attributed with eradicating all disease and preventing new disease from arising.<sup>80</sup> Depending on the amounts of intake, this preparation is meant to increase semen production, strengthen the body, get rid of grey hair, enhance memorization faculty and eloquence, eradicate eye diseases, boost eyesight, prolong lifespan, become a second Śaṅkara, and live for a thousand, one hundred thousand, or ten million years. The focus of the *Ānandakanda*'s *rasāyana* is generally on the attainment of extreme longevity, or quasi-immortality, special powers, and godhood.<sup>81</sup> Such outcomes are beyond what the medical works typically propose as an effect of

78 See *Rasaratnākara Rasāyanakhaṇḍa* 2. 121–127 for a formulation against “all diseases, ageing and death” (*sarvarogajarāmṛtyu*); 3. 197–220, especially verses 215–216 for a mercury formulation that cures serious skin disorders (*kuṣṭha*), paralysis, wasted limbs, and generally all diseases; or 4.90–91 for a decoction that acts as a vermifuge, eradicates

“royal consumption” and unspecified other diseases (*rājayakṣmādiroga*).

79 See Dagmar Wujastyk 2016: 109–110.

80 *Ānandakanda* 1.6.44–49.

81 That is, attaining a condition of “Brahmahood” (*brahmatva*), or “Viṣṇuhood” (*viṣṇūtā*), or “Śivahood” (*śivatva*), etc.

*rasāyana* therapy, though the *Suśrutasaṃhitā*'s *rasāyana* with soma or with divine plants go into a similar direction.

The *Rasahrdayatantra*'s presentation of *rasāyana* depicts it as a process that includes preparatory therapies for cleansing the practitioner's body internally; a procedure (or perhaps series of procedures) that further prepare the body for the intake of the most potent mercurial elixir; and the effects of these procedures, namely the transformation of the body. The transformation of the practitioner is described as a lengthy process that is drawn out over a period of time, rather than as something that happens in an instant after taking an elixir. While the *Rasahrdayatantra* gives some recipes for the formulation of both preparatory medicines and mercurial elixirs in its *rasāyana* chapter, its *rasāyana* process does not include all the work that has to go in beforehand to prepare the raw materials. This is instead described at length in the preceding eighteen chapters. Therefore, *rasāyana* in the *Rasahrdayatantra* does not encompass the metallurgical part of alchemical operations. The same is true for the descriptions of *rasāyana* in the other examined alchemical works, with the exception of the *Rasaratnākara*'s *Rasāyanakhaṇḍa*, which describes a series of mercury processing procedures in its first chapter. These, however, are very brief when compared with the elaborate processes of preparing raw materials described in the *Rasaratnākara*'s *Rasakhaṇḍa*.

While there are many similarities between the alchemical works' presentations of *rasāyana*, there are also significant differences between them. Mainly, the larger compilations (the *Rasaratnākara* and the *Ānandakanda*) include more detail on the procedures and give more recipes for *rasāyana* elixirs. The *Ānandakanda* lays out a more clearly established programme for the intake of a series of elixirs during *rasāyana* than the *Rasahrdayatantra* or *Rasārṇava*. In the case of the *Rasaratnākara*'s *Rasāyanakhaṇḍa*, the listed elixirs seem to be alternatives to each other rather than part of a programme of taking multiple formulations. The *Rasaratnasamuccaya*'s much shorter presentation of *rasāyana* echoes this.

### 3. CONCLUSION

THERE is some structural agreement between the alchemical works' *rasāyana* with that of the medical works, as, for example, the methods of preparing for *rasāyana* with the internal cleansing of the body. However, medical *rasāyana* therapy seems to be a relatively more simple procedure as it is conceived as the application of only one *rasāyana* substance or formulation after the preliminary treatments. As noted above, two of the examined alchemical works seem to similarly describe a *rasāyana* process with one elixir, while the others advocate more complicated procedures with multiple elixirs during, and in some cases, after the *kṣetrīkaraṇa* process.

There is also a substantial difference in the kinds of formulations used for

*rasāyana* in medicine and in alchemy, though these differences get less pronounced over time with the increasing introduction of iatrochemical methods in medical works. While the earlier medical works mostly describe the use of herbal tonics for *rasāyana* therapy, later medical works (from the ninth/tenth century onwards) incorporate the inorganic and organic materials used in alchemical operations, and, perhaps even more significantly, also apply the methods for processing the new substances, albeit typically in a simplified form. However, mercury, the central focus of the alchemical *rasāyana* process, never becomes the main focus of medical *rasāyana*.

Finally, the probably greatest difference between medical and alchemical *rasāyana* lies in the expected outcomes from the “acts of improvement.” The multiple steps of alchemical *rasāyana* include outcomes similar to those listed in the medical works, such as rejuvenation, longevity, and health, but then go much further, extending the effects of *rasāyana* to the attainment of immortality and, beyond that, of godhood. While medical works standardly present *rasāyana* as a method of overcoming of ageing and disease (*jarāvvyādhi*), alchemical works describe *rasāyana* as a way of overcoming ageing and death (*jarāmṛtyu*). The alchemical works’ phrasing of overcoming ageing and death is then found in later medical works, starting with the *Vaṅgasenasamhitā*.<sup>82</sup>

This would make it seem as if alchemical *rasāyana* were a kind of “*rasāyana* plus,” an improved and maximised *rasāyana*, with more elaborate procedures and outcomes that are just that much more spectacular due to the special element of alchemy, the mercurial elixir. But that is not quite right, or rather, there isn’t a linear development from mild tonic to extreme elixir. In a way, the alchemical *rasāyana* could be understood as a return to form, in that its outcomes are reminiscent of some of the earliest depictions of *rasāyana* in the very oldest medical treatises. Both the *Carakasamhitā* and *Suśrutasamhitā* describe quite extreme therapies with correspondingly extreme outcomes in the context of the use of soma or divine herbs. These elements become tempered or are left out entirely in the later medical works, starting with the *Aṣṭāṅgahrdayasamhitā* in the seventh century. It is with these early *rasāyana* that I see the strongest correspondence with the *rasāyana* of the alchemical texts in terms of expected outcomes. Perhaps we can also make the argument that there is a parallel between the central *rasāyana* ingredients of soma and mercury.<sup>83</sup> However, for all correspondences, the procedures developed in the alchemical tradition for processing mercury and other substances that precede the intake of the *rasāyana* elixir sharply differentiate alchemical *rasāyana* from the medical *rasāyana* of the oldest medical works.

<sup>82</sup> See Dagmar Wujastyk *forthcoming*.

<sup>83</sup> See White 1996: ch. 2 on the parallels between soma and mercury and their

shared association with both semen and immortality.

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## APPENDIX

List of diseases in the *rasāyana* chapters of different Sanskrit medical works.

- Carakasamhitā (Cikitsāsthāna 1.1–4)* arśa, atibalavāta, grahaṇīdoṣa (pl.), gulma, hikkā, hṛdroga, jaṭhara, kāsa, kṣaya, kuṣṭha, medhāsmṛtijñānāhararoga (pl.), mūtraśukrasthadoṣa (pl.), galāmaya, pāṇḍutā, pīnāsa, pipāsa, plīha, śopha, śoṣa, śvāsa, śvitra, udara, uroroga, vaisvarya, vātabalāsaka, vātaśoṇita, viṣamajvara,
- Suśrutasaṃhitā (Cikitsāsthāna 27–30)* apacī, apasmāra, arśa, bhūtagraha, chardayatā, galagaṇḍa, kṛmi, kuṣṭha, mahāvvyādhi, pāṇḍuroga, raktapitta, ślīpada, śoṇita, śoṣa, svarabheda, udara, unmāda, viṣamajvara
- Aṣṭāṅgahṛdayasaṃhitā (Uttarasthāna 39)* arśa, atibalavāta, galagraha, garodara, grahaṇī, gulma, hidhmā, hṛdroga, jvara, kāsa, kilāsa, kṛmi, kuṣṭha, medodoṣa, meha, mūtraśukrastharoga (pl.), pāṇḍutva, pāyujaroga, plīha (pl.), prameha, śopha, śoṣa, sudustaravāta, śvāsa, śvitram, nikhilakuṣṭha (pl.), viṣamajvara, unmāda, vaisvarya, vami, vātaśoṇita, yakṣman
- Aṣṭāṅgasamgraha (Uttarasthāna 49)* aktāndhyakacā, āmamarut, ānāha, āpacī, apasmāra, apatantraka, arbuda, arman, arśa, ārtavadoṣa, ārucī, aśmarī, atibalavāta (pl.), atikārśya, atisāra, atisthauilya, āyāma, bādhirya, bhagandara, dantakarṇaśīroruja, durnāma, duṣṭavraṇa, galagaṇḍa, galagraha, gaṇḍamālā, garodara, ghana, grahaṇī, granthī, gudaja, gude klīma, gulma, halīmaka, hidhmā, hṛdroga, jāḍhya, jalodara, jaṭhara, jvara, kāmala, kaphaja (pl.), kārśya, kāsa, kilāsa, kṛmi, kṣaya, śiragada, kṛśatā, kuṣṭha, lūtākīṭākhusarpadaṣṭa (pl.), mada, madhumeha, mandānalatva, manodoṣa, medodoṣa, meha, mukhagada, mūrccā, mūtraśukrāśrayadoṣa (pl.), niliroga (pl.), netragada, pāṇḍutva, pīnasa, piṭaka, plīha, prameha, rakta(doṣa), ślīpada, śoṣa, śopha, sthauilya, śukradoṣa, svarabheda, śvāsa, śvayathu, sveda, śvitra, taimira, tamasa, tvagvikāra (pl.), udara, unmāda, upalaghana, ūrustambha, vaisvarya, vāmaya, vami, vandhyatā, vardhma, vātabhagna, vātakaphāmaya (pl.), vātaroga (pl.), vātaśoṇita, vidradhi, vilambikā, viṣamajvara, visarpa, vyaṅga, yakṛdroga, yakṣman

<i>Kalyāṇakāraka</i> ( <i>pariccheda</i> 6, <i>Soasthyarakṣanādhikāra</i> )	none
<i>Siddhayoga</i> (chapter 69)	arśa, amlapitta, ārucci, atisāra, dāha, duṣṭaśukra, galaśirakarṇaśaṅkhākṣiroga (pl.), jvara, kāsa, kaṭi, khālitya, koṭha, kṛmi, kuṣṭha, meha, moha, mūtraghāta, pīnasa, piṭaka, prameha, śvāsa, śoṣa, śukradoṣa, śvayathu, timira, udara, vaisvarya, vamaṇa, vātapittakṣatajakaphakṛtavādyāhi (pl.), vraṇa
<i>Cakradatta</i> (chapter 66)	ādhyaṅgavāta, akṣiroga, amlapitta, ānāha, apasmāra, arbuda, arśa, ārucci, āsṛgdara, atikārśya, atisāra, atisthauḷya, bhagandara, bradhna, galāmaya, galaśirakarṇaśūlākṣiroga (pl.), grahaṇī, gudakīla, gulma, (five kinds of) gulma, hikkā, hṛdroga, jaṭhara, jvara, kāmala, kāsa, kaṭi, klaibya, kṣaya, koṭha, kuṣṭhāroga (pl.), kuṣṭha, mada, mūtraghāta, pāṇḍutā, piḍaka, pīnasa, pittaśūla, plīha, prameha, raktapitta, śvayathu, śvāsa, śoṣa, śoṭha, śukradoṣa, śūla, śvitra, śāṇḍhya, śīroroga, sveda, ślīpada, udara, unmāda, vadanaroga, vaisvarya, vami, vandhya, vātapittakṣatajakaphakṛtavādyāhi (pl.), vātabalāsaka, vātaśoṇita, vidradhi, viṣamajvara, yakṣman, yonidoṣa
<i>Vaiṅgasenasamhitā</i> <sup>84</sup> (chapter 77)	agnimāndya, agnisāda, ajīrṇa, āmajagrahaṇī, āma(jaroga), āmaakoṣṭha, āmaśūla, āmavāta, amlapitta, ānāha, apasmāra, arśa, ārucci, arocaka, aśmarī, āndhya, atiduṣṭavahni, atikārśya, atisāra, atislīpada, atisthauḷya, bastikuṣṭhigudāruj, bhasmaka, bhagadoṣa, bhagandara, bhrama, chardi, daurbalya, dehakampa, dīrghajvara, durnāma, gadastambha, gaṇḍamāla (pl.), grahaṇī, grahaṇigada, grantārbuda, gudakīla, gude klīma, gulma, halīmaka, hastakampa, hikkā, hṛcchūla, hṛddoṣa, jalodara, jalpatā, jaṭharāgnimāndya, jvara, locanaroga, kāmala, kaphātigāḍha, kaphapittāśra (roga), kāsa, kaṭiśūla, kṛcchra, kṣaya, kuṣṭhīśūla, kuṣṭha, 18 types of kuṣṭha, mada, mandāgni-doṣa (pl.), mastakaroga, medovikāra, meha, mukhāsra, mukharoga, mūrccā, mūrḍhaśūla, mūtradoṣa, mūtrakṛcchra, nābhīśūla, netraroga, paittikagrahaṇī, paṅktiśūla, pāmā, pañcakāsa, pāṇḍuroga, pariṇāma, parināmaśūla, pārśvaśūla, piḍikā, pīnasa, pitta(roga), pittaśleṣmādhikagrahaṇigada, plīha, pradara, prakampa, prameha, raktachardi, raktaroga (pl.), raktolbaṇa, raktapitta, śaṃḍha, sandhivāta, sarvakaphaja, sarvanetrāmaya, sarvapittodbhāva (pl.), sidhman, śīroroga, śleṣmikagrahaṇī, ślīpada, śoṣa, śoṭha, śramajavyādyāhi, śrutiroga, śukradoṣa, śukraprameha, śukrāśmarī, śukrāsra, śvāsa, sveda, śvitra, tridoṣoṭtha(roga), trikaśūla, tṛṣā, udararoga, unmāda, ūrdhvadhūma, ūrdhvaṅyū, urustambha, vadanaroga, vahnīsāda, vamathu, vami, vardhman, vātapittakaphamahāvādyāhi (pl.), vātaprakopa (pl.), vātarakta, vātaśleṣmādhikagrahaṇigada, vataśoṇita, vibandha, vidradhi, vigandhatva, viṣamajvara, visarpa, viṣṭambhagrahaṇī, yakṛdoṣa, yakṣman

<sup>84</sup>Although the *Vaiṅgasenasamhitā* enumerates a greater number of different diseases in its *rasāyana* section than the other works, it should also be noted that in this list given here, the difference

<i>Bhāvaprakāśa</i> , ( <i>Uttarakhaṇḍa</i> 2) <i>Yogaratanākara</i> (chapter 76)	none amlapitta, arman, arśa, ārucci, atisāra, dāha, dṛḍhaśūlayukta- rakta, doṣajvara, duṣṭaśukra, ghora, grahaṇīgāda, gudāṅkura, jīrṇajvara, kaṇḍu, krimi, kṣaya, kuṣṭha, khālitya, meha, moha, pāṇḍu, prameha, rājaruj, samnipāta, śukradoṣa, śvāsa, timira, udararogajāla, vamaṇa, vātāmaya, viṣadoṣa
<i>Bhaiṣajyaratnāvalī</i> , ( <i>Uttarakhaṇḍa</i> 73)	ādhyaṅvāta, agnimāndya, ajīrṇa, āmaśūla, āmavāta, amlapitta, ānāha, arbuda, aśmarī, asṛgdara, arśa, ārucci, asrapitta, atikārśya, atisāra, atisthaulya, bhagandara, bhrama, bradhna, dāha, daurgandhya, durnāma, galagraha, galamaya, galotthān- antravṛddhi, grahaṇīdoṣa, gulma, halīmaka, hikkā, hṛcchūla, jalodara, jarā, jaṭhara, jihvastambha, jvara, kāmala, kaphavāto- tha, karṇanāsākṣimukhavajjātya, kāsa, kasana, kaṭiśūla, klaibya, kṣaya, kuṣṭha, mada, mūḍhagarbha, mūtraghāta, mūtrakṛcchra, netraroga, paktiśūla, pāṇḍutā, pīnasa, prameha, pūtana, rajaśukrasamudbhava, raktanūt, raktapitta, rocaka, samnipātajvara, śāṇḍhya, śiraśūla, ślīpada, somaruja, śoṣa, śoṭha, sthaulya, striroga, śūla, śvāsa, śvitra, sveda, tṛṣṇa, tṛṣā, udara, unmāda, vaisvaryā, vamaṇa, vamathu, vami, vātabalā- saka, vātaśonīta, vidradhi, viṣamajvara, vraṇa, vyaṅga, yakṛt, yakṣman, yonīśukradoṣa

## TEXT EDITIONS

Ānandakanda	S. V. Radhakrishna, ed. (1952). <i>Anandakandam, Edited with Translation in Tamil, and Introduction in Tamil and Sanskrit</i> . Vol. 15. TMSSM Series. Thanjavur: Tanjore Maharaja Serfoji's Saraswati Mahal Library.
Aṣṭāṅgahrdayasamhitā	K. R. Srikantha Murthy (1999–2000). <i>Vāgbhaṭa's Aṣṭāṅga Hrdayam, Text, English translation, Notes, Appendix and Indices, translated by K.R. Srikantha Murthy</i> . 3 vols. Varanasi: Krishnadas Academy.
Aṣṭāṅgasamgraha	K. R. Srikantha Murthy (1995–1997). <i>Aṣṭāṅga Samgraha of Vāgbhaṭa, Text, English translation, Notes, Indices etc., translated by K.R. Srikantha Murthy</i> . 3 vols. Varanasi: Chaukhamba Orientalia.
Bhaiṣajyaratnāvalī	Brahmashankar Mishra (2006). <i>Bhaiṣajyaratnāvalī of Shri Govinda Dasji, edited and enlarged by Brahmashankar Mishra; commented upon by Ambikadatta Shāstrī; English translation by Kanjiv Lochan; translation technically</i>

in number of listed diseases is partly due to Vaṅgasena's use of synonyms for diseases, whereas the other authors tend to use one single term for a disease. Repetitions of disease terms are not reproduced in the list.



- reviewed by Anand K. Choudhary. 3 vols. Varanasi: Chaukhambha Sanskrit Bhawan.
- Bhāvaprakāśa K. R. Srikantha Murthy (1998–2000). *Bhāvaprakāśa of Bhāvamiśra (Text, English Translation, Notes, Appendices [sic], and Index)*. 2 vols. Varanasi: Krishnadas Academy.
- Cakradatta Priya Vrat Sharma (2002). *Cakradatta (Sanskrit Text with English Translation). A Treatise on Principles and Practices of Ayurvedic Medicine*. Varanasi: Chaukhamba Publishers.
- Carakasamhitā Yādavaśarman Trivikrama Ācārya, ed. (1981). *Carakasamhitā, śrīcakrapāñidattaviracitayā āyurvedadīpikāvya-khyayā samvalitā*. 4th ed. New Delhi: Munshiram Manoharlal.
- Rasahrdayatantra B. V. Subbarayappa, B. S. Ramakrishna Rao, M. Mahadeva Sastry, and S. R. N. Murthy (1997). "Rasahrdaya Tantram of Govinda Bhagavatpāda". In: *Indian Journal of History of Science* 32, 1–68 (32.1), 69–148 (32.2).
- Rasamañjarī Siddhinandana Miśra (2003). *Rasamañjarī. "Siddhipradā" Hindī Vyākhyāśahitā*. Jayakṛṣṇadāsa āyurveda granthamālā 81. Vārānāsī: Caukhambhā Oriyañtāliyā.
- Rasaratnākara Kṣemarāja Śrīkṛṣṇadāsa, ed. (1909). *Śrīḥ siddhanityanāthaprañītaḥ rasaratnākaraḥ, (samastarasagranthānām śirobhūṣaṇam), Māthuravaiśyā 'yurvedoddhāraka sālāgrāmakṛta bhāṣāṅīkāvibhūṣitaḥ*. Mumbai: Śrīveṅkaṭeśvara Steam Press.
- Rasaratnasamuccaya Āśubodha Vidyābhūṣaṇa and Nityabodha Vidyāratna, eds. (1927). *Saṅīkaḥ Rasaratnasamuccayaḥ: (prācīnaraśa-granthaḥ)*. Kalikātā: The editors. URL: <https://archive.org/details/VagbhataRasaratnasamuccaya1927> (on 2 Jan. 2017).
- Rasārṇava P. C. Ray and H. C. Kaviratna (2007). *Rasārṇava*. Edited by P. C. Ray, H. C. Kaviratna. Re-Edited by S. Jain. Delhi: Oriental Book Centre.
- Rasāyanakhaṇḍa Yādavaśarman Trivikrama Ācārya, ed. (1913). *Śrīnityanāthasiddhaviracito Rasaratnākarañtargataś caturtho Rasāyanakhaṇḍaḥ ... saṅśodhitaḥ prakāśitaś ca = Rasāyanakhaṇḍa, Fourth Part of Rasaratnākara by Shri Nityanāthasiddha edited by Jadavjī Tricumjī Āchārya*. Āyurvedīya Granthamālā 10. Bombay: The editor, at

- the Nirayasar Press. URL: <https://archive.org/details/TricumjiAcharyaRasayanKhanda1913>.
- Rasendracintāmaṇi Siddhinandana Miśra (2000). *Rasendracintāmaṇiḥ, "Siddhipradā" Hindī vyākhyā sahitaḥ, Dhuṇḍhukanāthena viracitaḥ, Hindi vyākhyākāraḥ, Siddhinandanamiśraḥ*. Jayakṛṣṇadāsa āyurveda granthamālā 91. Vārānāsī: Caukhambhā Oriyaṅṭāliyā.
- Śārṅgadharasaṃhitā K. R. Srikantha Murthy (1984). *Śārṅgadharasaṃhitā (A Treatise on Āyurveda) by Śārṅgadharā, Translated into English*. Varanasi, Delhi: Chaukhambha Orientalia.
- Śārṅgadharasaṃhitā Paraśurāma Śāstrī, ed. (1931). *Dāmodarasūnu-Śārṅgadharācāryaviracitā Śārṅgadharasaṃhitā. Bhiṣag-varĀḍhamallaviracitadīpikāKāśīrāmavaidyaviracita-gūḍhārthadīpikābhyāṃ, ṭīkābhyāṃ, saṃvalitā*. 2nd ed. Mum̄bai: Nirṇayasāgara Press. 1st ed. 1920.
- Siddhayoga Premvati Tewari, ed. (2006). *The First Treatise of Āyurveda on Treatment Vṛndamādhava or Siddha Yoga*. Varanasi: Chaukhambha Visvabharati.
- Suśrutasaṃhitā Priya Vrat Sharma (1999–2001). *Suśruta-Saṃhitā, with English Translation of Text and Ḍalhaṇa's Commentary Alongwith (sic) Critical Notes*. 3 vols. Haridas Ayurveda Series 9. Varanasi: Chaukhambha Visvabharati.
- Vaṅgasenasamhitā Nirmal Saxena, ed. (2004). *Vaṅgasena Saṃhitā or Cikit-sāsāra Saṃgraha of Vaṅgasena. Text with English Translation, Notes, Historical Introduction, Comments, Index and Appendices*. Vol. CXXV. 2 vols. Chowkhanbā Sanskrit Series. Varanasi: Chowkhanbā Sanskrit Series Office.

## SECONDARY LITERATURE

- Falk, Harry (1989). "Soma I and II". In: *Bulletin of the School of Oriental and African Studies* 52, pp. 77–90.
- Fenner, Edward Todd (1979). "Rasayana Siddhi: Medicine and Alchemy in the Buddhist Tantras". PhD. Madison: University of Wisconsin, Madison.
- Hellwig, Oliver (1999–). *DCS: Digital Corpus of Sanskrit*. URL: <http://kjc-sv013.kjc.uni-heidelberg.de/dcs/>.
- (2008). "Rasāyana und die āyurvedische Krankheitskunde". In: *Traditional South Asian Medicine* 8, pp. 32–64.
- (2009a). "Alchemical Procedures and their Implications for the Chronology of Medieval Rasaśāstra". In: *eJournal of Indian Medicine* 2, pp. 53–65.

- (2009b). *Wörterbuch der mittelalterlichen indischen Alchemie*. Groningen: Barkhuis & University of Groningen, University Library. ISBN: 9789077922620.
- Meulenbeld, Gerrit Jan (1999–2002). *A History of Indian Medical Literature*. 5 vols. Groningen: E. Forsten. ISBN: 9069801248.
- Nadkarni, A. K. (1954). *Dr. K. M. Nadkarni's Indian Materia Medica, with Ayurvedic, Unani-tibbi, Siddha, Allopathic, Homeopathic, Naturopathic & Home Remedies, Appendices & Notes*. 2 vols. Bombay: Popular Prakashan. URL: <https://archive.org/details/IndianMateriaMedicaK.M.Nadkarni> (on 11 Aug. 2017). URL is 1926 edition.
- Palit, Chittabrata (2009). *An Ancient Indian System of Rasayana: Suvarnatantra - A Treatise on Alchemy*. Delhi: Kalpaz Publications. ISBN: 9788178356921. Google Books: [JEkZQYT2RwsC](https://books.google.com/books?id=JEkZQYT2RwsC).
- Rāy, Praphulla Chandra (1903). *A History of Hindu Chemistry from the Earliest Times to the Middle of the Sixteenth Century, A.D. With Sanskrit Texts, Variants, Translation and Illustrations*. 2nd ed. 1 vols. Calcutta: The Bengal Chemical and Pharmaceutical Works.
- Roşu, Arion (1975). "Considérations sur une technique du Rasāyana āyurvédique". French. In: *Indo-Iranian Journal* 17.1, pp. 1–29. ISSN: 1572-8536. DOI: 10.1163/000000075790079222.
- Roy, Mira and B.V. Subbarayappa (1976). *Rasārṇavakalpa. Manifold Powers of the Ocean of Rasa*. Indian National Science Academy 5. New Delhi: Indian National Science Academy.
- White, David Gordon (1996). *The Alchemical Body: Siddha Traditions in Medieval India*. Chicago: University of Chicago Press. ISBN: 0-226-89497-5.
- (2012). "Rasāyana". In: *Brill's Encyclopedia of Hinduism*. Ed. by Knut A. Jacobsen, Helene Basu, Angelika Malinar, and Vasudha Narayanan. Vol. 3. Leiden & Boston: Brill, pp. 489–99. DOI: 10.1163/2212-5019\_beh\_CDM\_9000000059.
- Wujastyk, Dagmar (forthcoming). "On Attaining Special Powers through Rasāyana Therapies in Sanskrit Medical and Alchemical Literature". In: *Religious Medicine*. Ed. by Michael Stanley–Baker and Pierce Salguero. Manchester: Manchester University Press. Forthcoming.
- (2013). "Perfect Medicine. Mercury in Sanskrit Medical Literature". In: *Asian Medicine: Tradition & Modernity* 8.1, pp. 15–40. ISSN: 1573-4218. DOI: 10.1163/15734218-12341278.
- (2015). "On Perfecting the Body. Rasāyana in Sanskrit Medical Literature". In: *AION: Annali dell'Università degli Studi di Napoli "L'Orientale"*. *Elisir Mercuriale e Immortalità. Capitoli per una Storia dell'Alchimia nell'Antica Eurasia*. A cura di Giacomella Orofino, Amneris Roselli e Antonella Sannino XXXVII.2015, pp. 55–77. ISSN: 11128-7209. URL: <https://www.libraweb.net/articoli.php?chiave=201509901&rivista=99> (on 16 Aug. 2017).

- Wujastyk, Dagmar (2016). "Mercury Tonics (Rasāyana) in Sanskrit Medical Literature". In: *Soulless Matter, Seats of Energy*. Ed. by Fabrizio M. Ferrari and Thomas Dähnhardt. Bristol, CT: Equinox Publishing Ltd, pp. 94–115. ISBN: 9781781791295. URL: <https://www.equinoxpub.com/home/view-chapter/?id=29654> (on 5 Dec. 2017).
- Wujastyk, Dominik (1984). "An Alchemical Ghost: the *Rasaratnākara* by Nāgārjuna". In: *Ambix* 31, pp. 70–83. DOI: 10.1179/amb.1984.31.2.70.
- (2003). *The Roots of Ayurveda: Selections from Sanskrit Medical Writings*. 3rd ed. Penguin Classics. London, New York: Penguin Group. ISBN: 0140448241.