

## On Elephants in Manasollasa – 3. *Gajavahyali*: Sports with Elephants in the Arena

Nalini Sadhale<sup>1</sup> and Y L Nene<sup>2</sup>

1. B1, Kanakalaxmi Apartments, Street No. 6, Hardikar Bagh, Himayatnagar, Hyderabad – 500 029, Andhra Pradesh, India (email: [nalinisadhale@vsnl.net](mailto:nalinisadhale@vsnl.net))
2. Asian Agri-History Foundation, Secunderabad – 500 009, Andhra Pradesh, India (email: [ynene@satyam.net.in](mailto:ynene@satyam.net.in))

### Abstract

*Hastishastra or the science dealing with elephants originated in India. Kings in ancient India maintained a separate division of manned elephants in their armies. Capturing elephants from forests and managing them was an important activity in most kingdoms. Two papers, one on elephant habitat and methods of capturing and the other on diseases and treatments were published in the previous two issues of this journal. In this paper English translation of 256 verses (Manasollasa: Section IV, Chapter 3 – Gajavahyali) related to the sports in arena have been presented and discussed. It is obvious that though the sports were dangerous, human participation was voluntary and precautions were taken to reduce risk to human lives.*

This paper should be read in continuation of our earlier papers (Sadhale and Nene, 2004a; 2004b). The following 256 verses describe types of elephants selected for sports, prescription for exciting elephants to be active during sports, preparation of arena, arrival of the king and others, criteria to declare winners, and other related aspects (Manasollasa: Section IV, Chapter 3 - *Gajavahyali*) (Shrigondekar, 1925, 1961). A number of Sanskrit names of herbs appear in the text. The Latin equivalents of these Sanskrit names have been provided.

### Translation

405. *Vahyali* (sports in the arena) of the elephants is yet another amusement of the kings. A king in the company of his choice should amuse himself with the sports of the elephants.

406. The elephants must be made to exert themselves for being fit for war and for fights with the *Yavanas* (mostly Ionian Greeks, but also Muslim and Europeans). In the absence of intoxication, elephants can neither run nor fight.

407. Intoxication is the only true power of elephants; so special efforts are needed for inducing the same. Roaring, mouthfuls of desired food, and stimulating amorous instincts are the ways of heightening the intoxication.

408–410. By using medicines that stimulate the formation of ichor in the temples and applying methods known to cause enlargement of the trunk, expansion of the face, purification of the temples, outflow and increase in the quantity of ichor, induction of certain smell or color in the rut, the king should arrange for the treatment of the elephants in keeping with their species and the seven constituents (technically called *Saptadhatus* in Ayurveda) supplemented by appropriate food and drinks. For that it is necessary to know about the types, first. So I shall define them hereunder.

### The Types of elephants

### **Mriga.**

411, 412. The hindquarter of the body, nails, teeth, penis, waist, trunk, and neck of the *Mriga* elephant are thin and long. The head, back, tail, soles, and chin are short. Temples are full of rut. Belly and ears are extremely slender.

413. The great toes, hair on the chin and chest appear stunted. Complexion is dark and eyes are large and black.

414. This describes the appearance. Now its characteristics while roaming in the forest are described. This elephant of the *Mriga* type never moves about alone in the forest and roams always like the cattle (who move in herds).

415, 416a. The *Mriga* elephant always follows the herd in the forest, as he is timid by nature. He is fickle-minded too. When he is under training after captivity, his understanding is shallow. He has bad temper and fickleness of mind.

### **Manda.**

416b. This type of the elephant has broad chest, mouth and ears.

417. The hindquarter, head, tusks, . . . (*sagadam varmakandharam* – this text is not clear) hair of the tail and bristles are thick.

418. Tail, backbone, chin, and trunk are long and the penis and the testicles are drooping.

419. His sides resemble those of a goat. The tawny-colored eyes are beautiful. The complexion resembles that of a dark cloud. There is stoutness in the entire body.

420. Dullness and excess of skin-wrinkles are the characteristics of an elephant of the *Manda* type. Animals like rabbits are not scared to live in the forest inhabited by this elephant.

421. He does not get angry easily. He stays alone and is always fond of sleep. Under training in captivity he shows the following characteristics.

422. His understanding is deep but does not learn his work quickly. Whatever is learned, he forgets soon. He is lustful and is particularly good in lovemaking.

423a. He does not lose temper and has a stubborn gait. An elephant of the *Manda* type is like this.

### **Bhadra.**

423b. The hindquarter, trunk, and tail of the *Bhadra* type are neither too fleshy nor too thin but are proportionate.

424–427a. Broad and raised chest and a bow-shaped backbone; temples, forehead, prominences and sides (of the back where the rider sits) fleshy; big tusks, large ears, loins resembling those of a hog, goat-like belly, beautiful in appearance, shining and uniform nails and tusks; honey-colored eyes, whitish complexion adorned with dark spots, very tall, palate, tongue and lips of a reddish hue – these are the characteristic marks of a *Bhadra* elephant.

427b. In the forest, he always leads the herd while roaming and searching for food.

428. He is not scared by the sound of thunder or drums. On the contrary, he rejoices at it without being disconcerted. When brought from the forest under proper conditions, he shows good understanding during training period.

429, 430a. He is a fast learner, has gentle nature and does not forget what he has learned. He works daringly and is himself very brave. He is endowed with good characteristics of appearance and behavior. Such is the elephant of the *Bhadra* type who promises victory (in war).

### ***Mishra and Sankirna.***

430b. An elephant who has a combination of the characteristics of any two of the above-stated three species is *Mishra* (of mixed type) while he, who has a combination of the characteristics of all the three is known as *Sankirna* (an admixture).

431. Accordingly, *Bhadramanda*, *Bhadramriga*, *Mandabhadra*, *Manda-mriga*, *Mrigabhadra*, and *Mrigamanda* are the six types of the *Mishraka* species.

432. Similarly, *Bhadramandamriga* or a *Bhadra* type born of *Manda* and *Mriga* varieties and *Mandabhadramriga* or a *Manda* born of *Bhadra* and *Mriga* (parents) (are the names of the *Sankirna* type).

433. These are named after the qualities, which are prominent in them. They are also named on account of their complexion or facial features (which they inherit). Their names and characteristics are like this.

434. The behavior of a *Mishra* elephant is of a mixed type and that of the *Sankirna* is also according to their name. These are the three species of elephants known as pure, combined and mixed.

435. Of them, *Bhadra* is the best, *Manda* is the mediocre and *Mriga* is the inferior class. The same order applies to the *Mishra* and the *Sankirna* types.

### **Constitution**

436. The wise also recognize pure, combined, and mixed as the three types of constitutions of the elephants, depending on prominence of phlegm, bile, and wind and the seven basic elements.

437. When phlegm predominates the constitution the elephant is *Sattvika*, when bile predominates he is *Rajasa* and when wind predominates he is called the *Tamasa* type. Here too, the wise should understand the combined and the mixed type of constitutions as before.

438. An elephant of *Sattvika* constitution is intelligent and has smooth complexion. He eats with restraint even when hungry. He has the correct grasp of things taught. He has a long span of life and is lustful.

439. The *Rajasa* elephant runs fast, eats plenty, is brave, intelligent, and fickle-minded. He is wicked and of shallow understanding.

440. The *Tamasa* elephant learns his lesson when punished. He also forgets what he has learned. He grasps the meaning opposite to the intended sense. He is fond of sleep.

### **Special medication for better results**

#### **General tonic.**

441, 442. *Valla*, *ucchata*, *vidari*, *gokshura*, *shalmali*, *vari*, *vajigandha*, cow's milk, *gojihva*, *bhumisharkara*, *hinsra*, *kutaja*, *dhatri*, *cchinna*, and *masha* – all powdered, mixed with milk and shaped into balls is said to be a great nourishment, i.e., *Brimhana* (a medicine for healthy growth) for the elephants.

#### **Enlargement of mouth (face).**

443–445. A combination of *bala*, *gokshura*, *kushmanda*, *masha*, *dhatri*, *shatavari*, *ucchata*, and *kutaja*, powdered and mixed with milk, mixture of powders of *parusha* (*parushaka* ?), *ankolla*, *hinsra*, *lakshmana*, *sindhuvallika*, *chitraka*, *surasa*, *shigru*, *kashmiri*, *girikarnika*, *bhusharkara*, *agnimantha*, *shaphari* (*shambari* ?), *shatavari*, *putika*, and *karnikara* with oil and water (acts as nourishment – enhances the quantity ?) of fluid flowing from the temples of an elephant in rut.

446–447. The root of *bhallata*, *murva*, and *kadali* are very effective; *ketaki*, *kumari*, and *raktasaurika* (*raktasaura* ?) all in equal proportion, made into a powder, mixed with curd, milk, and clarified butter to form balls, acts as resistant to fear (?) and enlarges the mouth (face) of the elephant.

### **Enlargement of temples.**

448, 449. *Krishna*, *gholla* (*ghonta*), *bala*, *gunja*, *suvaha*, *gokshura*, *saha*, *shatahva*, *mushali*, *vella*, *pratichi*, *balavidarika*, *bhusharkara*, and *shalmali*, all in equal proportion, ground into a fine powder and shaped into balls with the help of curd when given to the elephants enlarges their temples.

### **Purification of temples.**

450–452. The powder of *ela*, *priyangu*, *kutaja*, *haritala*, *manahshila* (containing red arsenic – realgar), turmeric (if the unintelligible word is taken as *triyama*), grains of black color, *ramatha*, *sarpakanchuka* (slough of a serpent ?), *akhuvidveshi*, *hinsra*, *musta*, *chitraka*, salt, *vira*, *rasona*, *dhattura*, and *trivritta* should be properly used as a wick (used like an eye-pencil in ayurvedic treatment), as a purifier of bladder, and as an ointment for the temples which purifies the temples of the elephant.

### **Outflow and increase of rut.**

453. A wick of the size of the width of a grain of *yava*, made from the droppings of pigeons and asafetida (*hingtu*) may be continuously moved over (the temples) by making it rest for a while.

454. A powder of *chitraka*, *durva*, *ghonta*, *mula*, and *chuta*, mixed with honey and oil is used for causing the flow of rut.

455. A mixture of six, viz., jaggery, oil, wine, dry ginger (*shunthi*), *krishna*, and *madhuka* should be given to the elephant for the outflow and increase in the quantity of rut.

456, 457. A mixture of *arka*, *shigru*, *rasona*, *kadamba*, *padmaksha*, *surasavha*, *guduchi*, *karanjaka*, and *champaka* taken in equal proportion, ground to powder, and mixed with curd is shaped into a ball and given to the elephant for increase in the rut. A combination of sugarcane (*ikshu*) juice, milk and clarified butter also gives the same result.

### **Creating fragrances in the ichor.**

458, 459. *Ketaki*, *shigru*, *surasa*, *vellantara*, *ushira*, *siddhaka*, *yuthika*, *rambha*, *kabandha* (?), and *mustaka* taken in equal proportion, ground into a soft powder, and mixed with honey and clarified butter, if given to the elephants produces aroma in the fluid of their ichor.

### **Producing colors in the ichor.**

460. *Parijataka* flowers, *kimshuka*, *kinihi*, jaggery, *haritaki*, and *hastikarni* given with honey produce white color in the elephants' ichor.

461. *Shilajatu* (exudation of rock)\* with buttermilk, flour of *shali*, goat milk, *yasa* (*yavasa*), and *kanchi* (*kanji* ?) (a gruel) also produce white color in the ichor.

[\* It is said to be oozing out in summer. It is of four types: essence of gold, silver, copper, and iron.]

462. The root of *anjana* tree treated in *narirasa* (*narikela rasa* ?) (coconut milk or water), along with *kutaja* creates blue color in the ichor.

463. *Darvi* double in proportion to the ear (of the elephant) produces red color in his ichor. Turmeric (*haridra*) mixed with honey produces yellow color in the ichor.

464. (The same) drenched in *madhu* (short for *madhuparni*) and mixed in food given at bedtime quickly produces dark color in the ichor.

465. Fruits of *dhatri*, *nili*, and *madhuka* produce black color. *Durva* given along with honey produces green color.

### **Treatment for exciting anger.**

466. An ointment of fruits and roots of *brihati*, dry ginger (*shunthi*) with salt prepared in the five Mutras (Mulas ?) and applied to the scrotum excites anger in the elephants.

467. A paste made of *kushtha*, *daru* (*devadaru* ?), *rajani* (turmeric), and *tagara* in oil and applied to the anus excites anger in elephants.

468. A paste of *pippali*, *maricha* (pepper), dry ginger (*shunthi*), and *markati* fruit in oil applied to the temples excites a good deal of anger in the elephant.

469. A lump made out of *rajika*, root of *pilu*, *phanija*, *pippali*, *kana*, *nagara* (dry ginger), and *bijapura* also provokes elephants.

470. The medicines to be applied to the temples, etc. prescribed for exciting anger should be used just the previous day of the event (sports, war, etc.). Then the elephant dashes forth on the battlefield.

### **The seven visible signs of magnificence resulting after nourishment (*Brimhana*)**

471. Seven marks of beauty are noticeable on the elephants nourished with the prescriptions of *Brimhana*. These marks along with the special names given to them shall now be described one by one.

472, 473. *Sanjatarudhira* (effects of fresh blood supply) is a name given to the condition when the elephant shakes his trunk, ears, and tail in vanity. The corners of lips, palate, tongue, the pair of breasts, and eyes become prominently noticeable. Gradually the magnanimity of the animal increases. The complexion becomes beautiful and there is an increase in fresh blood.

474. *Praticchanna* (covered) is the name given to the condition when the portion of the head between the tusks, the neck, wrists (end portions of the leg), chest, and sides of the elephant are covered with flesh (become more fleshy).

475. *Pakshalepini* (plastering the sides) is that condition in which the animal shows stoutness in all the joints, limbs, and face and the two sides become more fleshy (appearing plastered with flesh as it were), losing the wrinkles.

476, 477. In the fourth state of magnificence, armpits, neck, and both the edges of the tusks become puffed up, the basic elements (*dhatu*s) acquire a state of balance, the animal becomes passionate and (the complexion) looks supremely radiant. This state named '*Samakaksha*' (evenly balanced at armpits) is equally recommended for all the events like war, journey, and sports.

478. The fifth state of beauty named *Samakalpa* (almost perfectly balanced) makes the elephant look exquisitely charming. In this state the backbone, shoulders, and the part near the end of the spine (or the

portion between the shoulder blades) all appear in one level. In this state the elephant becomes sleepy and sluggish, walks unhurriedly, and inhales breath of long duration.

479. *Vyatikirnika* (spread out) is the name given to the sixth state of beauty in which the fleshy parts of the elephant's body shake (rhythmically) as he walks.

480. When the backbone sinks (in the flesh of the back) making it appear like a plantain (*kadali*) leaf placed facing upward, it is the seventh state of beauty called *Dronika* (a leaf-container).

### **The twelve stages of intoxication**

481. After acquiring these states of magnificence the elephant experiences twelve stages of intoxication, five internal and seven external.

482–484. A well-formed back and penis, reddish eyes, pleasing complexion, and attraction for the cow – these are the signs of the first stage of intoxication of the elephant. In addition, he frequently faces upwards as though smelling the sky. He adjusts his gait (to that of others) on the path intended for the elephants. He is furious at the sight of other males. He looks attractive, attacks other males frequently, and strikes the ground with his tusks. He develops fondness for sporting with dust and is always eager to smear his body with mud. An elephant in this stage of intoxication is called *Sanchita* (accumulated).

485. In the second stage of intoxication, the elephant sleeps only for a short while, is always in an angry mood, and yawning all the time. He is very furious and his eyes turn red.

486, 487. When the elephant enters the third stage he yells constantly. He turns the food (instead of eating the same). He can be chained only after a prolonged effort. He does not lie down for sleep. He stretches his neck by holding onto a branch of a tree and walks energetically.

488. (In the fourth stage) the region surrounding the temples of the elephant looks swollen. The face looks charming. (The word *ursha* is not intelligible. If read as *urna* it may render the meaning as –) Due to the proximity of the trunk to 'the region between the eyebrows' (?), the nostrils are exposed.

489. (In the fifth stage) the elephant kisses his temples with his trunk. He sharply looks sideways and angrily moves backward licking the ends of his lips.

490, 491a. When the ichor flows out of the temples, the elephant looks very happy and the (first external) state of intoxication is imminent. The ichor appearing on the pair of his temples resembles marks on the forehead (*tilaka*). From wherever or whomsoever sound strikes his ears he may get angry with him. This is *tilakita* stage.

491b, 492. (In the second external stage of intoxication) flow of rut spreads between the temples and over the cheeks occupying the region of the face measuring about a *vitasti* (a measure of length equal to the distance between the tip of the thumb and the tip of the little finger of a stretched palm). It also trickles down the trunk. The elephant in this stage is fearless.

492b–494a. In the third stage called *Adhonubandhini* (continued downward), small quantity of ichor trickles down due to excess as the elephant walks. The two streams of rut reach down the eyes causing hurt. The roar deepens resembling that of a cloud. Other marks stated earlier are also present.

494b–496a. (In the fourth stage) the elephant bears resemblance to the cloud with an excessive flow of ichor with a strong smell, trickling down. He appears more delighting. He is fit for warlike sports. He feels like killing all the beings but stays under the control of the *mahat* (mahout). He is fit for the king to mount on. This condition is known as *Gandhacharini* (smell-emitting).

496b–498a. (In the fifth stage) the elephant is always in an angry mood. He hates food and feels like killing everyone. Rut flows constantly from all the eight outlets, viz., ears, breasts, eyes, temples, palate, trunk, roots of the bristles, and testicles. This condition is called *Arohasravasi* (in which in spite of the excessive flow of ichor the elephant tolerates mounting).

498b, 499. (In the sixth stage) the elephant roams about during night in a state of agitation and refuses to come to the tying post due to anger. He is not bothered about sleep or hunger. His eyes are stretched to the ears due to the downward flow of ichor. This stage is called *Valita* (highly advanced).

500. (In the last stage) the elephant is reduced to skin and bones losing all his flesh due to unlimited outflow of rut. He needs to be controlled by three attendants. He seeks to destroy even his own reflection.

501. When the elephant thus goes beyond control the condition is named *Ativartini* (beyond control). In this stage the elephant sees nothing, knows nothing, hears nothing, and does not stand at one place.

502. The elephant must be caused to return from the sixth stage when the rut flows in an unlimited way rendering its strong smell to the ground and in no case should he be allowed to go beyond the seventh stage.

503. The animal is soon destroyed if allowed to go beyond the last limit (of the seventh stage). Thus elephants in these different states of intoxication should be employed for the purpose of entertainment.

### **Preparation for arena**

504, 505. In the first part of (the previous) night the king should send for the chief of the *mahats* and ask him to illuminate the place and order him to start beating of an instrument called *virasuda*\*, which is as pleasing as tabor along with the sounding of double drum and victory-bells.

[\* *Virasuda* is some sort of musical instrument resembling drum or tabor, specially beaten for cheering up soldiers. The word ‘*suda*’, a technical term in the science of music, is stated to be of unknown origin.]

506. The attendants should stand surrounding the elephants and should shout out war cries, exciting the soldiers.

507, 508. Hearing their shouts the king should send for them and give each one of them, big and small plates and thick, white silken clothes for adornment. He should also give them oil and powder of red lead – vermilion to decorate the respective elephants in rut.

509. He should also give colorful silken cloth for the girth of the heroes. Balls made of medicinal ingredients should be given to the elephants in rut as stimulants before sleep, and for sleeping (as per the need). These should be administered to the *Bhadra* elephants after sleep.

510. *Mriga* elephants also should be given these medicines after sleep and the *Manda* elephants before sleeping.

511, 512a. The chief of the *mahats* should then give the stimulating drugs, previously prepared, to the elephants as per their constitutions. The discrete chief should then tie the *Manda* elephants in the sun, *Mriga* elephants in shade, and the *Bhadras* in shade and sun.

512b. No food or water should be given to the elephants on the day of the sports event.

513. The loins of the elephants should be massaged and smeared with oil. Red lead – vermilion should be applied to the heads. A distinct mark should, however, be put on the forehead between the temples.

514. Decorating the elephants thus, they should be brought from the place of rehearsal of the sports and confined to the posts at a suitable distance from one another.

### **The arena**

515, 516. The arena should be a hundred *dhanus* (i.e., 400 cubits or 600 ft) in length and sixty *dhanus* (i.e., 240 cubits or 360 ft) in width. The ground should be free of bone-pieces (or any pointed objects), pits, stones, and thorns. It should be free of dust, should be soft and leveled in such a way that the eastern side is slightly raised. It should be covered with water-jars (?) and should be provided with two entrances, one each at the longer sides.

517. These gateways should be well-decorated ornamental arches. The arena should be so designed as to face either the east or the north.

518. To the right side of the arena facing east, a strong, spacious, and beautiful enclosure for the spectators should be constructed from the middle portion, adjoined to the place of activity.

519. It should have an elevated seat at the upper portion, a wall at the back and should be surrounded by a ditch.

520. It should be beautified with whitewashed pillars with gold decorations. It should be adorned with canopy of various colors and flooring bedecked with crystal.

521. Wooden planks placed on the ditch should lead a way to it. A staircase for climbing must also be provided. All precautions should be taken to make it secure from the elephants.

522. Another enclosure should also be constructed outside the ditch, at a place located to the south, slightly behind the first one.

523. This too, should be lofty, spacious and beautiful, surrounded by a ditch, equipped with a wall decorated with paintings. The same is intended for the chieftains of the provinces.

524. A raised platform equipped with a net should be fixed in front of the enclosure resting on eight pillars dug in at the two sides.

525. It should be provided with two heavy and long wooden bars fixed with strong nails on a height of an elephant's chest and with ditches on both the sides.

526. A similar platform should also be constructed to the north near the eastern entrance for use at the end of the race.

### **Announcements**

527. After being informed by the chief of the *mahats* that the arena as described above is ready, the king should offer worship to gods.

528, 529. He should then make arrangements to announce the following proclamations at every square and street of the city with the beating of drums: "People with potbellies, pregnant women, children, and those who are physically handicapped must not come out of the house with a curiosity to watch the event as dangerous, intoxicated elephants can kill like the god of death himself."

530. He should also make yet another announcement, viz., "Whosoever, among the fast runners desires to run in competition with an elephant may run in the race to get rich reward."

531, 532a. After lunch, the king should then start dressing up. He should also give proper garments and ornaments to his beloved wives and sons, to the secretaries, counsellors, and ministers.



## Departure

532b–535. He should then order the elephants and horses to be brought. Wearing proper dress and ornaments, he should help the queens and other ladies of the harem, also wearing rich dresses and ornaments, mount the cows brought adorned with golden flowers and should then himself mount a cow of gentle gait, who is adorned with a lattice of pearls and small tinkling ornaments, cowries decorating the ears, and a *nakshatramala* (a kind of necklace of the elephants) decorating the neck; equipped with two bells hanging on the two sides, with her head reddened with red lead – vermilion.

536. As the Sun starts descending to the west and the heat is slightly reduced, the procession should start inching slowly, with the king in front.

## Arrival at the arena

537. On reaching the arena, the cows should be made to sit and the king should help the ladies to descend and make them enter ahead of him.

538. He should then arrange to lead the way to the spectators' enclosure for the princes, chieftains of the principalities, secretaries, counsellors, ministers, other dignitaries as also various attendants and others.

539. Dismounting from the comfortable seat on the cow, he should carefully enter by the bridge made on the ditch.

540. Climbing easily to the special enclosure with the help of the ladder he should then occupy the throne accompanied by his beloved wives.

541a. He should then arrange to seat all those entered previously as per their status.

541b, 542a. Greatly delighted on listening to the beating of *virasuda* he should direct the chief *mahat* to present the participants.

[The word *prikaara* could not be traced. The meaning given here is as suits the context.]

542b, 543a. Covered with a piece of cloth and adorned with ornaments under it, each one of them should present himself before the king, vying with each other.

543b. The king should then ask them what prompted them to participate in the race.

544, 545. “Sir, both of us envy each other”, “We hope to get gold (as reward)”, “I have impeded (claimed ?) the elephant’s seat”, “I am subjected to humiliation”, “O lord of men, I have entered (the race) to prove my speed on pledge (in comparison with the elephant)” – thus informed, the king should guide them properly.

## Grading the participants

546. There are three types of participants – excellent, mediocre, and inferior. I shall describe now their distinctive characteristics, which depend mainly on their speed.

547. Out of the three tracks set for running, the first is intended for the elephant, the second is left as the king’s land and the third is intended for the participant.

548. He who runs stretching his hand in the first or second track without stepping into the third is the excellent one.

549. He who runs as stated above in front of a mediocre elephant is known as the mediocre one.

550. He who runs in front of an inferior elephant as is described earlier is known as the inferior type.

551. He who comes from behind and overtakes the steps of another, running ahead of him is to be reckoned for his excellent speed with which he can surpass even horses.

552. The elephant that kills the human rival running ten *dhanus* (60 ft) ahead of him by running a distance of fifty *dhanus* (300 ft) is considered excellent in speed.

553. The elephant reaching from behind up to the middle of the footprints of the one running ahead of him should be considered mediocre in speed by the experts.

554. The elephant that kills the human rival running eight *dhanus* (48 ft) ahead of him by running the distance of eighty *dhanus* (480 ft) should be considered as mediocre by experts.

555. The elephant that is running ahead but lags behind the one running behind him should be regarded as the most inferior of the elephants in speed.

556. If an elephant kills the human rival running five *dhanus* (30 ft) ahead of him by running a distance of a hundred *dhanus* (600 ft) he should always be considered inferior in speed.

557. Elephants running speedily in all the three tracks are of the best caliber. Those doing so on the second and the third (track) are mediocre and those on the first are inferior.

558. The elephant, which is not ferocious, should be called to take position in the outer track but the one with mild rage should be placed in front near the west entrance.

559. Depending on the number of the elephant's striking the ground and pulling back the trunk the competitor gets additional points to win. If this number is less the competitor loses so many points and if the number is the same for both, the competitor neither gains nor loses.

560. The rival, competing with the elephant should enter near the hind portion and threaten him with his hand. The elephant will then run attackingly as if engaged in a fight.

561. If an elephant running with a human rival goes to the third track swerving from the first two, the human participant is the winner and the elephant is the loser.

562. The elephant is also declared as defeated if throwing away the gourd (*tumbika*) he leaves the track and goes astray, if he runs in a zigzag manner like a serpent, or if he is ill behaved in any other manner.

[Could carrying a gourd on the trunk while running be a kind of race? The word *dhrita* accepted in the text does not render any satisfactory meaning in the present context. So the reading *udvritta* suggested in the footnote is preferred.]

563. A person running for another gets the promised amount of money in case he wins the race. If he is defeated, he gets nothing and if the (rival) elephant kills him, he is killed (as a part of the race and the family gets no compensation, etc.).

564. If a human rival makes a mark with a powder either at the hind part or on the tusks or if another one rubs off such marks already existing, it is known as the race for pledge.

565. He who fulfills the pledge should be declared as the winner. In case he fails to accomplish the pledge or in case he is killed in the process, the elephant is declared the winner.

566. A line should be drawn on the ground in the track called after the king at a distance of twenty *dhanus* (120 ft). A human participant running across the width of the track even as the elephant is speedily advancing is declared the winner.

567. The man running alongside to ward off (the animal) is also declared the winner. If either of the two is killed, the elephant is declared the winner.

568. While running side by side if the back of the human participant is wetted by the elephant by spurting water from his trunk, he (the man) should be declared the winner. In case he is killed the elephant is declared the winner.

569–571. The best runner at the elephant's track, the mediocre one at the king's track, and the inferior one at the human competitor's track should be asked to take positions in due order. The best should take charge of the mediocre (elephant), the mediocre one that of an inferior one, and the inferior one up to the end of his track. In this manner he who takes the elephant to the end of his respective track is declared the winner. If he fails to curb the elephant thus, and/or is killed, the elephant is declared the winner.

[The nature of this race is not clearly understood mainly as the author uses only adjectives without mentioning whether it is an elephant or a human being.]

572. A thief running with his hands tied up, in front of an elephant is freed of his offence if he remains alive and is liberated from the sin if he is killed.

### **Races of elephants with the horse riders**

573. A horse is made to run in front of a speedy elephant. If the elephant spurts water with his trunk on the back of the horse rider, victory goes to the horse rider.

574. One horse rider throws a ring on the elephant's tusk and the latter removes it with his trunk. He who fails to do the job is defeated.

575. These are the various types of races and the criteria for defeat and victory, which are described above. Hereafter I shall describe the different ways of ascending the elephant.

### **Elephant drivers**

576. Elephant drivers employ three methods to mount the elephant, viz., deceit, trick, and force, according to which they are classified as inferior, mediocre and superior, respectively. He, who knows all the three, surpasses all of them.

577. Elephants are mounted by ascending from either side of the forequarter and of the hindquarter; from either side of the belly; with the help of ropes; by holding the ear; by clasping at the mouth; and by ascending a nearby tree.

578. The same are the methods for dismounting. During war, an elephant is dismounted from the ear. Thus there are ten different ways of (mounting and) dismounting.

### **Three types of seats**

579. There are three types of seats (on the back of the elephant), excellent, mediocre and inferior. . . . That which is even at the middle is the mediocre.

[The words *pravishya* and *padagrena* used to describe the excellent and the inferior seats respectively are difficult to construe.]

580. The excellent or the elevated seat is recommended for *Manda* type of elephants and for use in war. The mediocre or the medium (in height) is recommended for *Bhadra* type of elephants and for use in races.

581. However, in the case of *Mriga* elephant of stooping body, who often shakes his head, inferior or low (in height) seat is recommended. Such are the seats recommended for different types of elephants.

582. All the three seats should be even, strong, closely attached, adjusted at the knee-joint and beautifully prepared.

### **Attendant driver**

583. When for prodding the elephant the driver bends his body forward from the seat he is named the bent attendant.

584. To jab with a goad when he bends downward turning his face to the side, he is called an attendant bent to the side.

585. When he bends the body backward to prod the elephant from the back, he is known as the driver bent backward.

### **The code of communication**

586. The words used to remove fear from the elephant's mind and to appease his anger are called *upalapana* (cajole) communication.

587. The gestures used to convey the import taught previously to the elephant are known as *prajnyapana* (reminding) type of communication by the elephant-trainers.

588. When abusive words are used to train an elephant it is called *tarjana* (communication by threat).

589. The goad shoved forward is *atikshipta* (far-flung prod). When the same is drawn backward it is called *pratikshipta* (opposite prod).

590. When the driver prods the elephant on both the sides with his goad the expert drivers call it *prahata* (painful prod).

591. When the driver rotates the goad holding it upward it is called *sukshma* (the subtle one). The goad turned downward is the *adirna* (cut to pieces) communication.

592. When the driver barely touches the elephant on head with the goad the experts of the code-language call it *ishatsprishtha* (gentle touch).

593. If the goad is dug half the finger-breadth [four barley corns (*yava*)] deep in the elephant's head it is known as *pranidhana* (great effort) and is employed in the case of those who are ordered to serve.

594. The prod two *angulas* (sixteen barley corns) deep is considered the *piditaka* (tormenter). Striking by tossing (the goad) up is known as the *kshiptaka* (toss).

595. Striking with the side of the goad is called *taritaka* (deliverer). The prodding with a probe is called *toda*.

596. Depending on the prods with the goad, there are twelve *arakshas* described with reference to the elephant. At the tips of the temples they are called *bindu* (dot). Below the temples they are called *vitana* (expanse).

[*Aaraksha* which means protection does not make sense in the present context. Another reading suggested in the footnote, viz., *aaraghata* meaning prodding with a probe is worth considering.]

597. Those outside the *vitana*s but adjacent to them are called *avagraha* (separation). Those at the end and further away from the *vitana*s are called *nidana*.

598. The junction of the top of the ear and the head is called *srotahsandhi* (the juncture of the flow). The juncture in front is *karnasandhi* (the juncture of the ear) and the one behind it is the *karnamula* (root of the ear).

599. The experts call piercing the *karnamula* with the tip of the goad in order to move the elephant forward *toda*.

600. Striking the tip of the goad at *avagraha* or *vitana* to move the elephant backward is called *avakarsha*.

601. Expert drivers of elephants call the strike of the goad at the *karnasandhi* for moving the elephant sideways in a rotating manner *nivartana*.

602. Those proficient in wielding the goad call the strike of the goad at the *nidana* to order the elephant to raise his head upward *utkarnaka*.

603. To cause the elephant put forth his (front) feet the *mahat* should pull, not too hard though, the rope round the elephant's neck. Simultaneously he should firmly (perhaps pressing the heels against the elephant's sides) turn the soles of his feet outward.

604. To cause the elephant fill enough (water in the trunk ?), the *mahat* should firmly press big toes deep against the sides. To make the elephant drag something from (with) hands, the *mahat* should press hard at the elephant's back\* (or goad him with the stick).

[\*The word 'yavani' used in the text seems to be wrong. The nearest 'yavane' means curtain which does not make any sense in the present context. It is suggested that 'yavanipidanam' be replaced, without harming the meter by either 'talpanapidanam' or 'taranipidanam' where *talpana* = elephant's back and *tarani* = a stick.]

605. To turn the elephant to the left, the right big toe should be used and to turn to the right the left big toe should be used.

606. If the *mahat* wants the elephant to bend his face downward, he should prod the animal with both the toes with tips turned downwards.

607. When the *mahat* wishes the elephant to turn his face upward he should do so by propelling the animal with his big toes with tips turned upward.

### **Ability of the elephant**

608. Elephant, which understands the intention of the *mahat* merely by his holding up the goad is called *antyavedi* (of superb understanding). This elephant belongs to *Sankirna* (mixed) type.

609. He who understands the order merely by the touch of the goad or rod on the skin is *uttanavedi* (an elephant of quick understanding) and belongs to the *Mriga* type.

610. He who has to be hit till he bleeds and who understands after a long time what he is expected to do is a *gambhiravedi* (an elephant of slow understanding) and belongs to the *Manda* type.

611. He who knows whether to kill or not from the strike of the *mahat* is *anvarthavedi* (an elephant of right understanding). He is the best of the elephants belonging to the *Bhadra* type.

612. He who runs faster when restrained and stands still when impelled to run is *atyarthavedi* (an elephant of opposite understanding) and is an elephant belonging to a mixed type.

### **Postures of elephants**

613. The wise call it a *paschatya* posture with one knee bent, when the elephant stretches one leg and bends the other.

614. *Utkunda* is the name given to that posture of the elephant when he stretches two legs while resting the other two knees on the ground.

615. When the bent knees on either side of the back are brought together it is called *mandukasana* (the frog-posture).

616. One foot raised high and the other leg at the back with a bent knee is the posture of an elephant called *kurmasana* (the tortoise posture).

617. [The first line is not clear.]

The posture with one bent knee is recommended for running.

618. *Kurma* or *utkata* (furious, haughty) posture is recommended for entertaining sport while *urdhva* (upward) posture is practiced in wartime.

### **Races related to mahats and elephants**

619. While the human competitor takes his position near the elephant, the *mahat* must not release the goad holding the heels of the elephant.

620. The *mahat* driving the elephant in the race behind the human competitor should keep his eyes on the former and should notice the drop in his speed.

621. If the elephant looks confounded or if the *mahat* notices his sunken back or sluggish movement of feet he should know that the elephant is losing.

622. Knowing the movements of a losing elephant the *mahat* should strive hard to impel him with vigorous movements of the buttocks so that he kills the man ahead in a short while.

623. If the man falls to the ground being hit by the elephant's trunk the *mahat* should hold the animal, ready to kill the man, with the help of his goad pulled back.

624. But when the elephant disregarding the goad, kills the man with his tusks the elephant is declared the winner and the *mahat*, the loser.

625. If the man running ahead falls with his body clinging on to the claw the *mahat* should make the elephant run fast and find a way out.

626. If while running, the man is killed with the claw it should not be considered the defeat of the *mahat* as he is helpless. If, however, the elephant turns and stampedes the man on the ground it is a clear defeat of the expert driver.

### **The hazardous show of the unruly elephant**

628. An elephant with cruel intentions is in the extreme state (*ativartini*) of intoxication and the king should arrange to bring him for test even though it involved great effort.

629. An elephant that cannot be controlled by words, goad, or feet (thrusts of *mahat*) and who is therefore beyond the control of the rider is called *anarudha* (not ascended, i.e., as good as not being ascended by the *mahat*).

630. Such an elephant therefore, should be brought with his eyes covered with a piece of cloth that veils his face and with both the ears plugged with wet cloth.

631. Horsemen riding on the horseback must surround him. The elephant, most formidable like death incarnate, should be brought to the ground of the arena in this manner.

632. Loud beatings of *virasuda* should be ordered at some distance and the human competitor must be cautioned before the elephant moves in through the entrance.

633. Then the horsemen should be asked to move away and the earplugs should be removed. The cloth veiling the face should be removed too and the runner should be pointed out to him.

634. Then the elephant will raise his ears erect and motionless, compress his chin, stretch forward his trunk, lift up his tail in anger –

635. – and start chasing the runner speedily in a flurry on finding him as though a dream fulfilled.

636–639. At this juncture the horsemen attack him. So leaving the runner the elephant starts chasing them. Assaulting the horses the elephant, terrifying one and all, kills one of the horses and then attacks the spectators. Reaching out for them he stampedes some under his feet, kills others with his toe nails, pierces still others with his tusks, attacks some with his trunk, hits some on the boulders, kills those ascending the trees with the tusks and those hiding in trenches by fishing them out with the trunk.

640. The elephant is like death called Bhairava the destroyer, in an appearance of an elephant and may destroy chariots, horses, humans, and camels, without fatigue.

641. On one side the herd of cows, on the other the herd of horses and even a couple of men are not to be seen there together.

642. The arena is deserted. With great difficulty the *mahats* take away the elephant goads in hand.

### **Fights between elephants**

643. At this juncture fights between elephants equal in physique, attacking style, strength, age, and the class (type) may be arranged.

644, 645. Firmly poised like the tortoise (the second incarnation of Vishnu) and retaliating like the primordial boar (the third incarnation of Vishnu), abandoning the bondage of duties and strong like Bhima, old hand (in fighting) bearing fourteen marks of wounds caused by tusks is the elephant which is invincible in fights and is recommended for such fights.

### **Various attacking modes**

646. *Parilakha*: This is a diagonally upward attack on the rival elephant.

*Tallekha*: This is a stroke from above as with a rod.

647. *Kartari*: Pressing the mouth of the rival elephant by holding it in between the tusks simultaneously by both the rivals is the mode of attack called by this name.

648. *Talaghata*: This is a hit from below with the tusks at the base of the rival's lips.

649. *Ajaghatana*: Striking the rival by obliquely raising the face is the attack called by this name and the *mahat* should make the elephant attack the rival by obliquely raising his face to perpetrate the same.

650. *Dantaghata*: Positioning the part between the tusks on the corresponding part of the rival, clutching the lips with tusks and shaking about vigorously is the mode of attack given this name.

651. *Suchighata*: Pulling back the head diagonally and attacking with a single tusk the portion between the tusks of the rival elephant is what constitutes this mode.

652. *Tadakaghata*: When in an attack with tusks on the rival elephant's tusks, pieces of tusk fall down the fighting mode is called by this name by experts.

653. *Sandhita*: This is that mode when a furious elephant kills the rival with his forequarter of the body by climbing on to the hind part of the rival like a lion.

654. *Nirghata*: When the elephant kills the rival by retracting a little, drawing in the forequarter of the body and then springing like a ram, the mode of attack is called by this name.

### General precautions

655. Effort should be made to manage the rival elephants in such a manner as not to let them take positions side by side; and those in a state of intoxication in such a manner as not to let them stand diagonally opposite each other.

656. After bringing the elephant to face the rival, the *mahat* should make him push the rival back. When the rival retreats, the *mahat* of the attacking elephant should pull him back.

### Rewards

657, 658. The king should in the end, give the superintendent of the elephants' wing, chief of the *mahats*, attendants, other *mahats*, the *virasuda* beaters, and the horse riders running with the elephants, rewards in the form of garments, gold, gold ornaments of various kind, etc. and make them happy.

659. Occasionally the king should himself ride on an elephant attended by servants and soldiers for the entertainment of people and please them with the sight.

660. In the end the king should send off all the guests with proper honor and should himself enter the palace.

Thus king Someshvara described the royal entertainment with elephants in arena.

## Discussion

The description of elephant sports given in Manasollasa seems to be the only one available to us today. The description gives a vivid impression about the choice and training of elephants, preparing an arena for sports, criteria for declaring winners, and other related aspects. Modern elephant experts seem to be totally unaware of the existence of the information on elephant sports in India.

### Types of elephants

We note definite names given to types of elephants (verses 411–440). These were *Mriga*, *Manda*, *Bhadra*, *Mishra* (mixed), and *Sankirna* (crossbred). While *Bhadra* was considered best and *Manda* mediocre, the remaining ones had to be judged carefully. Six subtypes of the *Mishra* and two of *Sankirna* are mentioned. A Jain sage, Sri Hansdev (c. 500 AD) had described 13 different types of elephants



(Chitampally and Bhatkhande, 1993); viz., *Danti*, *Dantaval*, *Hasti*, *Dwirad*, *Gaja*, *Bhadragaja*, *Mandagaja*, *Mrigagaja*, *Sankiragaja*, *Matangaja*, *Padmi*, *Ibha*, and *Stamberam*. *Bhadragaja*, *Mandagaja*, and *Mrigagaja* are obviously the same as *Bhadra*, *Manda*, and *Mriga* of Manasollasa. This classification system continued through centuries and the same was apparently used by Akbar when terms such as *Bhaddar* (*Bhadra*), *Mand* (*Manda*), *Mirg* (*Mriga*) were coined (Blochman, 1927). *Bhadra* was considered best for ceremonies; *Mriga* and *Manda* were used in sports.

### **Exciting the elephants**

Verses 441 through 470 give prescriptions to excite elephants for active participation in the sports. General tonics to improve health were given. In addition there were prescriptions to enlarge the face and temples, “purify” the temples, increase the rut, provide fragrance to ichor and color it, and incite anger. Materials used for all these prescriptions were based on the knowledge of Ayurveda. A list of herbs with Latin equivalents has been given in Table 1. It is interesting to note that most prescriptions for internal administration had honey, milk, or buttermilk as the base material; probably these base materials improve absorption of other ingredients. Verses 471 through 480 explain how the improvement in animal’s health was monitored. Then there is the description of 12 stages of intoxication (verses 481 through 503). These were to be monitored carefully and administration of prescriptions to excite the animal was to be altered once the signs of the sixth stage (verses 498b, 499) became evident. Allowing the animal to go beyond the sixth stage was as good as killing it.

### **Preparation of arena**

Verses 515 through 526 describe the preparation of arena. A rectangular field, 600 ft (196 m) × 360 ft (141 m), was prepared. Separate enclosures were made for the king and his family members, for nobles and their families, and for general public. Three tracks were prepared for the races. Precautions were taken to minimize risks of accidents. In this context, verses 527 through 532a make interesting reading. People with potbellies, pregnant women, children, and the physically challenged were not permitted to watch the sports.

### **King’s arrival at the arena**

It is fascinating to read the account. There was a protocol to be followed. Curtsies were extended to royal ladies.

### **Voluntary participation by men**

The scenario resembled the gladiators of the ancient Romans. However, the gladiators were mostly criminals or slaves who were forced to risk their lives for the sake of public entertainment. In the sports described here the men volunteered and gave reasons for participation (verses 544, 545). There were rewards given to the winners who won the races. Compensations were offered to families of those who were killed.

### **Races**

Races were of several kinds. These were between men and elephants, between horse riders and elephants, and between elephants. Rules for declaring winners are mentioned. Rules also existed for mahouts and for their seats on elephants. Skills of mahouts were judged as well. Verses 628 through 642 describe the event that obviously can be called a cruel one; an uncontrollable elephant was provoked to the extent that it destroyed all that came in his way.

Through our three articles, we have brought to light for the first time an ancient art of elephant management. Elephants were used in wars during the epics, Ramayana (c. 2000 BC) and Mahabharata (c. 1400 BC). There are other documents on elephants which still need to be translated for the benefit of modern natural historians and biologists.

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**Table 1. Sanskrit names of plants mentioned in Manasollasa and Latin equivalents.**

Sanskrit name	Latin name
<i>Agnimantha</i>	<i>Clerodendrum phlomides</i> L. f.
<i>Akhuvidveshi</i>	(?)
<i>Anjana</i>	<i>Hardwickia binata</i> Roxb.
<i>Ankolla</i>	<i>Alangium lamarckii</i> Thwaites
<i>Arka</i>	<i>Calotropis gigantea</i> Ait.
<i>Bala</i>	<i>Pavonia odorata</i> Willd.
<i>Balavidarika</i>	(?)
<i>Bhallata</i>	<i>Semecarpus anacardium</i> L. f.
<i>Bhumisharkara</i>	A kind of bulbous plant
<i>Bhusharkara</i>	A kind of bulbous plant
<i>Bijapura</i>	<i>Citrus medica</i> L.
<i>Brihati</i>	<i>Solanum indicum</i> L.
<i>Cchinna</i>	<i>Tinospora cordifolia</i> (Willd.) Hook. f. Thomp.
<i>Champaka</i>	<i>Michelia champaca</i> L.
<i>Chitraka</i>	<i>Plumbago zeylanica</i> L.
<i>Chuta</i>	<i>Mangifera indica</i> L.
<i>Daru (devadaru ?)</i>	<i>Cedrus deodara</i> (Roxb. ex Lamb.) G. Don
<i>Darvi</i>	<i>Coscinium fenestratum</i> (Gaertn.) Colebr.
<i>Dhatri</i>	<i>Emblia officinalis</i> Gaertn.
<i>Dhattura</i>	<i>Datura metel</i> L.
<i>Durva</i>	<i>Cynodon dactylon</i> (L.) Pers.
<i>Ela</i>	<i>Elettaria cardamomum</i> Maton
<i>Gholla/Ghonta</i>	<i>Meyna laxiflora</i> Robyns
<i>Girikarnika</i>	<i>Clitoria ternatea</i> L.
<i>Gojihva</i>	<i>Elephantopus scaber</i> L.
<i>Gokshura</i>	<i>Pedalium murex</i> L.

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**Sanskrit name****Latin name**

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<i>Guduchi</i>	<i>Tinospora cordifolia</i> (Willd.) Hook. f. Thomp.
<i>Gunja</i>	<i>Abrus precatorius</i> L.
<i>Haridra</i>	<i>Curcuma domestica</i> Val.
<i>Haritaki</i>	<i>Terminalia chebula</i> Retz.
<i>Haritala</i>	<i>Cynodon dactylon</i> (L.) Pers.
<i>Hastikarni</i>	<i>Alocasia macrorrhiza</i> (L.) G. Don
<i>Hingu</i>	<i>Ferula assafoetida</i> L.
<i>Hinsra</i>	<i>Nardostachys jatamansi</i> (D. Don) DC.
<i>Ikshu</i>	<i>Soccharum officinarum</i> L.
<i>Kabandha</i> (?)	(?)
<i>Kadali</i>	<i>Musa paradisiaca</i> L.
<i>Kadamba</i>	<i>Anthocephalus cadamba</i> (Roxb.) Miq.
<i>Kana</i>	<i>Piper longum</i> L.
<i>Karanjaka</i>	<i>Pongamia pinnata</i> (L.) Pierre
<i>Karnikara</i>	<i>Pterospermum acerifolium</i> Willd.
<i>Kashmiri</i>	<i>Gmelina arborea</i> L.
<i>Ketaki</i>	<i>Pandanus odoratissimus</i> L. f.
<i>Kimshuka</i>	<i>Butea monosperma</i> (Lamk.) Taubert
<i>Kini(hi ?)</i>	<i>Achyranthes aspera</i> L.
<i>Krishna</i>	<i>Piper nigrum</i> L.
<i>Kumari</i>	<i>Aloe barbadensis</i> Mill.
<i>Kushmanda</i>	<i>Benincasa hispida</i> (Thunb.) Cogn.
<i>Kushtha</i>	<i>Saussurea lappa</i> C.B. Clarke
<i>Kutaja</i>	<i>Wrightii tinctoria</i> R.Br.
<i>Lakshmana</i>	<i>Ipomoea sepiaria</i> Koen. (?)
<i>Madhuka</i>	<i>Madhuca indica</i> J.F. Gmel.
<i>Madhuparni (gambhari)</i>	<i>Gmelina arborea</i> L.
<i>Maricha</i>	<i>Piper nigrum</i> L.
<i>Markati</i>	<i>Mucuna pruriens</i> (L.) DC.
<i>Masha</i>	<i>Vigna mungo</i> (L.) Hepper
<i>Mula(ka)</i>	<i>Raphanus sativus</i> L.
<i>Murva</i>	<i>Sansevieria hyacinthoides</i> (L.) Willd.
<i>Mushali</i>	<i>Curculigo orchioides</i> Gaertn.
<i>Musta</i>	<i>Cyperus rotundus</i> L.
<i>Mustaka</i>	<i>Cyperus esculentus</i> L.
<i>Nagara</i>	<i>Zingiber officinale</i> Roscoe
<i>Narirasa (narikela rasa ?)</i>	<i>Cocos nucifera</i> L.
<i>Nili</i>	<i>Indigofera articulata</i> Gouan
<i>Padmaksha</i>	<i>Prunus cerasoides</i> D. Don
<i>Parijataka</i>	<i>Nyctanthus arbor-tristis</i> L.
<i>Parusha (parushaka ?)</i>	<i>Grewia subinaequalis</i> DC.
<i>Phanija</i>	<i>Origanum majorana</i> L.
<i>Pilu</i>	<i>Salvadora persica</i> L.
<i>Pippali</i>	<i>Piper longum</i> L.
<i>Pratichi</i>	(?)
<i>Priyangu</i>	<i>Aglaia elaeagnoidea</i> (Juss.) Benth.
<i>Putika</i>	<i>Pongamia pinnata</i> (L.) Pierre
<i>Rajani</i>	<i>Curcuma domestica</i> Val.

Sanskrit name	Latin name
<i>Rajika</i>	<i>Brassica nigra</i> (L.) Koch
<i>Raktasaurika (raktasaura ?)</i>	<i>Acacia catechu</i> (L. f.) Willd.
<i>Ramatha</i>	<i>Ferula assafoetida</i> L.
<i>Rambha</i>	<i>Musa paradisiaca</i> L.
<i>Rasona(ka)</i>	<i>Allium sativum</i> L.
<i>Saha</i>	<i>Barleria prionitis</i> L.
<i>Shali</i>	<i>Oryza sativa</i> L.
<i>Shalmali</i>	<i>Bombax malabaricum</i> DC.
<i>Shaphari (shambari ?)</i>	<i>Merremia gangetica</i> (L.) Cuzodont.
<i>Shatahva</i>	<i>Anethum graveolens</i> L.
<i>Shatavari</i>	<i>Asparagus racemosus</i> Willd.
<i>Shigru</i>	<i>Moringa oleifera</i> Lamk.
<i>Shunthi</i>	<i>Zingiber officinale</i> Roscoe
<i>Siddhaka</i>	<i>Vitex negundo</i> L.
<i>Sindhuvallika</i>	<i>Vitex negundo</i> L. (?)
<i>Surasa</i>	<i>Ocimum sanctum</i> L.
<i>Surasavha</i>	<i>Majorana hortensis</i> Moench
<i>Suvaha</i>	<i>Vitex negundo</i> L.
<i>Tagara</i>	<i>Valeriana jatamansi</i> Jones
<i>Trivritta</i>	<i>Operculina turpethum</i> (L.) Silva-Manso
<i>Triyama (?)</i>	<i>Curcuma domestica</i> Val.
<i>Tumbika</i>	<i>Lagenaria vulgaris</i> Ser.
<i>Uchata</i>	<i>Phyllanthus urinaria</i> L.
<i>Ushira</i>	<i>Vetiveria zizanioides</i> (L.) Nash.
<i>Vajigandha</i>	<i>Withania somnifera</i> (L.) Dunal
<i>Valla</i>	<i>Lablab purpureus</i> (L.) Sweet
<i>Vari</i>	<i>Asparagus racemosus</i> Willd.
<i>Vella</i>	<i>Embelia ribes</i> Burm. F
<i>Vellantara</i>	<i>Dichrostachys cinerea</i> (L.) Wt. & Arn.
<i>Vidari</i>	<i>Pueraria tuberosa</i> (Roxb. ex Willd.) DC.
<i>Vira</i>	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.
<i>Yava</i>	<i>Hordeum vulgare</i> (L.) emend. Bowden
<i>Yasa (yavasa)</i>	<i>Alhagi pseudalhagi</i> (Bieb.) Desv.
<i>Yuthika</i>	<i>Jasminum auriculatum</i> Vahl.