Indian Journal of Traditional Knowledge
Vol. 8(3), July 2009, pp. 352-361

Medicinal plants for the treatment of fever (*Jvaracikitsā*) in the M*ādhavacikitsā* tradition of India

DN Mishra

Department of Botany, Abeda Inamdar Senior College, Pune 411 001, Maharashtra
Email: drdeben108@gmail.com

Received 30 April 2007; revised 05 September 2008

The traditional knowledge of healing plants and their treatment methods are rooted in the *Āyurvedic* compendia (Sanskrit medical treaties) and in the unscripted dialects of the people in India. Scientific documentation of this vast information has been accelerated in the last few decades. Absolute correlation and correct taxonomic identification of the referred medicinal plants in the Sanskrit medical texts or of the spoken dialects have not been fully established. A first time study of the medicinal plants used for the treatment of fever (*Jvaracikitsā*) in *Mādhavacikitsā* text, one of the most important post *Caraka-Suśruta Samhitās* reveals that there are a total of 182 vernacular (Sanskrit) plant names in the text for the treatment of all major types of fever. These 182 plant names are actually of 105 medicinal plant species. These 105 plant species belong to 53 families; out of which a maximum of 10 species are from family Fabaceae, 6 from Asteraceae and 5 each from Verbenaceae, Euphorbiaceae and Poaceae. The literature search encountered several plants having one vernacular name with different botanical identifications and also a botanical identification has many vernacular names. The ambiguity is perhaps due to the regional interpolations and linguistic interpretations about the Sanskrit names and also possibly because of non-availability of any suitable ancient taxonomic or pharmacognostical record for the correct identification of these vernacular plant names.

Keywords: Traditional knowledge, *Ayurveda*, Medicinal plants, *Jvaracikitsâ, Mâdhavacikitsā*
IPC Int. Cl.[8]: A61K36/00, A61P29/00, A61P31/00, A61P31/04

Ayurveda in the post *Caraka-Suśruta* era (between 5th-10th century AD) was attempted to become user friendly through some systematic compilations and newer compositions in *Nidāna*, *Cikitsā* and *Dravyaguna*, etc.[1]. These works has been found to influence a large section of the *Āyurveda* practitioners in the middle age and the compiled texts have been eventually preserved as multiple copies in the form of manuscripts, commentaries, and books; today found scattered in India[2]. The present day knowledge on the *Āyurvedic* medicinal plants is to a large extent based on the traditional practices, often derived from such family sources or from the edited / non-edited Sanskrit medical texts and related literature. Rapid modernization and urbanization with alternate healthcare approaches have threatened the plant resources and the strength of these traditional practices and rather have enhanced the percentage of adulteration[3]. An attempt has been made for the first time to find out and enlist the medicinal plants mentioned in Sanskrit for the treatment of fever (*Jvaracikitsā*) in *Mādhavacikitsā* text. It is also aimed at providing a new thrust to the understanding of the traditional knowledge of India during the middle age *Āyurvedic* practices in light of these medicinal plants and to add to the database about the findings on alternate healthcare resources. The study was focused on *Jvara* or fever because it is said that out of all forms of diseases, *Jvara* is the most significant one. It starts before birth and also occurs during death. Hence, *Jvaracikitsā* or treatment of fever must begin before attending to any other complaints of the ailment or disease (CS ci. 3: 4, SS ut. 39: 8-10, AH ni. 2: 1-2, MC 1: 10)[4-7].

Methodology

The *Mādhavacikitsā* text was studied from its only edition in Sanskrit with Hindi commentary[7]. This edition is based on a few manuscripts of the text. The first chapter of *Mādhavacikitsā* is dedicated to the treatment of fever and is described as *Jvaracikitsā*. It contains 119 Sanskrit verses or set of verse lines (paragraphs) describing the treatment and healing methods, the medicines to be prepared and administered under different categories of *Jvara* (fever). Most of the mentioned medicines are of plant origin. Some medicinal plants also been explained in the text for their complementary roles in curing the

fever and some other plants are quoted for their spiritual effects in healing the ailment. All the plant names are described by their Sanskrit names and Sanskrit synonyms. On several occasions, a common group name of the plants representing usually two or more individual plants (*Triphalā*, *Paṇcamulī*, *Bṛhatyādigaṇa*, etc.) has been prescribed, to which further clarifications were resorted to from the medico-botanical glossaries, commentaries and other such literature. A list of these plants was made from the study after analyzing the paragraphs and their most probable botanical identifications were attempted as per the maximum agreement of a name by the describers/authors in the references and also by adhering to the latest taxonomic nomenclature (Tables 1 & 2). It is supported by an index of the Sanskrit names of the plants for a quick search.

Enumerations

The Sanskrit names of the plants along with their Sanskrit synonyms and Hindi equivalence are studied and enlisted from the *Jvaracikitsā* chapter paragraph wise, but for convenience the list is arranged alphabetically here by the botanical identifications (Table 1). The digits in the parentheses indicate the authors in references agreeing upon this identification. The Sanskrit names of the plants in the index have been accompanied with the serial number of the table in the parentheses. Care has been taken to maintain the correct spelling of the Sanskrit name by using the diacritical marks.

Discussion

The preliminary comparison between the *Jvaracikitsā* chapter and 3 other manuscripts of *Mādhavacikitsā* shows some variation in the total number of paragraphs in them, which might slightly change the total number of medicinal plants for the treatment of fever in this *Āyurvedic* treatise. Ignoring this fact, the study finds a total number of 182 plant names in Sanskrit descriptions that include the synonyms and 10 other Sanskrit names representing each as a group name of the medicinal plants (Table 2). These plants are the main constituents of the medicinal preparations for the treatment of fever. However, after reviewing the most probable botanical identifications of these plants, it was found that the total number of species is 105 only, rest being the multiple names in Sanskrit for some plants, e.g. *Nāgara* or *Śuṇṭhī* and *Dāru* or *Devadāru* have maximum 7 synonyms each in Sanskrit while *Kaṇṭakārī* has 6 alternate names, etc (Table 3). These 105 plant species belong to 53 botanical families in which 10 species are from the family Fabaceae, 6 species are from Asteraceae and 5 each from Verbenaceae, Euphorbiaceae, and Poaceae. Other families contribute one to three species. This observation is similar to the general report about the higher plant families that proportionately contribute to medicinal species[3]. The total number of herbs described in the *Jvara* chapter out of 105 is 55; the number of tree species is 32 and the total shrubs is 18. In general, the proportion of plant habits as a ratio of herbs: trees: shrubs for all medicinal plants are 47: 33: 20. And the present observation in this regard for *Jvaracikitsā* typically follows this ratio.

Suṅṭhī has been described 27 times with all 7 synonyms for different preparations in comparison to *Guḍūcī* (23 times), *Mustā* and *Tiktā* (21 times) or *Pippalī* (15 times), etc. The list of plants having bitter, astringent, pungent, sweet and sour tastes are used more in the treatment of *Jvara* as it is well understood that these tastes have controlling properties over the three perturbed doæas [CS su. 1: 66 & 1: 66 (1)] that are primarily responsible for causing fever[8]. Many plants also have been in the list as they are used in the preparation of medicated *ghee* (clarified butter), *Añjana* and oil which are administered to the patient as a part of medication or pressed for massaging during and after fever. The combination of plants advised for an extract formulation for a particular type of fever must have more similarity in their active principles as it is experimentally found out that certain correlation exists between the botanical classification of the plants, their chemical constitution and physiological properties and also closely allied plants of the same family exhibit similar response[9].

In the study of *Jvara* chapter of *Mādhavacikitsā*, it was observed that the Sanskrit names of the plants have been translated to the vernacular Hindi equivalence by Dādhīca as per his knowledge, understanding and experience. While in most of the cases his suggestion or translation of Hindi names agrees with other workers, there also exist some differences. The observations in this regard are: Mixing up of some Hindi names in describing different Sanskrit names of the plants which represent different taxa, e.g. *Pipala* as Hindi equivalence for the Sanskrit names like *Pippalī* and *Kaṇṭakārī*; *Kaṇṭakārī* as Hindi equivalence for Sanskrit names like *Bṛhatī, Śvadaṁstrā* and *Kaṇṭakārī*; *Parval* in

Table 1 — Medicinal and healing plants in the *Jvaracikitsā*

Sr. No.	Plant name	Family	Hindi name	Sanskrit name
1	*Achyranthes aspera* L. (7,15, 19, 21, 22, 23, 24, 25)	Amaranthaceae	Apāmārga = Latjīrā (7, 22)	*Apāmārga*
2	*Aconitum hetrophylum* Wall. (15, 19, 22, 23, 24, 25)	Ranunculaceae	Atīsa (7, 17, 18, 22, 23, 24, 25)	*Ativiṣā =Viṣā*
3	*Acorus calamus* L. (15, 18, 19, 22, 23, 24, 25)	Araceae	Vaca (7, 18, 22, 23, 24, 25)	*Shaḍgranthā = Vaca*
4	*Adhatoda zeylanica* Medic. & *Adhatoda vasica* Nees (7, 17, 22, 23, 24, 25)	Acanthaceae	Vāsā = Adūsā (7, 22, 23, 24, 25)	*Vāsā = Vāsaka = Vṛsa*
5	*Aegle marmelos* Corr. (15, 19, 22, 23, 24, 25)	Rutaceae	Bela (7, 22)	*Bilva*
6	*Albizzia lebbeck* Benth. (15, 16,17,18,19,22,23,24,25)	Mimosaceae	Śirīṣa (5,16,17, 19,22,23,24,25)	*Śirīṣa*
7	*Alhagi camelorum* Fisch. (15, 18, 19, 22, 23, 24, 25)	Fabaceae	Yavāsā (7, 25) / Javāsā (15,19, 23)	*Durālabha=Yāsa = Yavāsa = Dhanvayāsa**
8	*Allium sativum* L. (15, 16, 19, 22, 23, 24, 25)	Alliaceae	Lahaśuna (7,16, 19,22,23,24,25)	*Laśunam = Rasona*
9	*Andrographis paniculata* Nees (15, 17, 19, 22, 25)	Acanthaceae	Cirāyatā (7, 19, 25)	*Bhūniṁba*
10	*Anethum sowa* Kurz. (15, 18, 19, 22, 24)	Apiaceae	Saunph (15, 19, 22, 24)	*Śatāhvayā = Śatapuṣpā** (22,24)
11	*Aristolochia indica* L. *(15, 22, 23, 24, 25)	Aristolochiaceae	Nākulī (7,22, 23, 24, 25)	*Nākulī = Iśvarī**
12	*Azadirachta indica* A. Juss. (15,16,17,18, 19, 22, 23, 24, 25)	Meliaceae	Nimba (7,15, 22,23, 24)	*Nimba = Ariṣṭa*
13	*Bacopa monieri* (L.) Pennel. (15, 19, 22, 23, 24, 25)	Scrophulariaceae	Brāhmī (7,15,19, 20, 23, 24, 25)	*Brāhmī*
14	*Baliospermum montanum* Muell. - Arg. (15, 19, 22, 23, 24, 25)	Euphorbiaceae	Dantī (7, 15, 19, 22, 23, 24, 25)	*Dantī*
15	*Berberis aristata* DC. (15, 19, 22, 23, 24, 25)	Berberidaceae	Dāru Haldī?? (7, 19, 22, 23, 25)	*Dāru / Dārvī*
16	*Boerhavia diffusa* L. (15, 19, 21, 22, 23, 24, 25)	Nyctaginaceae	Punarnavā = Sāṭe (7,22,23,25)	*Punarnavā*
17	*Brassica campestris* L. va. Sarso Prain (15,16,19, 22, 23, 24, 25)	Brassicaceae	Sarason (7,22, 24, 25)	*Sarœapa = Siddhārtha*
18	*Callicarpa macrophylla* Vahl. (18, 19, 20, 21)	Verbenaceae	Priyaṅgu (7, 19, 20, 21, 22)	*Priyaṅgu*
19	*Carum carvi* L. (18,22, 23, 24, 25)	Apiaceae	Kālājīra (15, 19, 23, 25)	*Kāravī*
20	*Carum roxburghianum* (DC) Carib.?? (1, 19, 22, 23, 24)	Apiaceae	Ajamoda / Ajwain (1, 7, 22, 23, 24)	*Ajamodā*
21	*Cassia fistula* L. (7, 16, 18, 19, 22, 23, 24, 25)	Caesalpiniaceae	Amaltāsa (7, 19, 23, 24, 25)	*Śampāka = Rājavṛkṣa Āragvadha = Kiramālaka* (19, 22, 24, 25)
22	*Cedrus deodara* (Roxb.) Loud. (7, 19, 22, 23, 24, 25)	Pinaceae	Devadāru (7, 18, 24, 25)	*Dāru =Amara= Devakāṣṭha = Suradāru = Devadāru = Surataru = Surā*
23	*Cinnamomum camphora* Nees & Eberm (15, 19, 22, 23, 24, 25)	Lauraceae	Kapūra (7, 18, 23, 24)	*Hima*
24	*Cissampelos pareira* L. var. *hirsuta* (Buch.-Ham. ex DC) (15,19,22,23,24, 25)	Menispermaceae	Pâøhâ (8) = Pāḍha/(î) (22, 23, 24, 25)	*Pāṭhā*
25	*Citrullus colosynthis* Schrad. (15, 19, 22, 23, 24, 25)	Cucurbitaceae	Indrāyaṇa = Indravaruṇi (7, 15, 18, 19, 22, 23, 24, 25) = Baḍi iṅdrāyana	*Viśālā??*
26	*Citrus medica* L. (1, 15, 18, 19, 22, 23, 24, 25)	Rutaceae	Root of Beejira/ Bijaura Nimbu (7,15,22,23,24,25)	*Mātuluṅga = Bijapuraka*
27	*Clerodendrum serratum* (L.) Moon.(15,22,20,23,24, 25)	Verbenaceae	Bhāraṅgī (7,15, 19,22,23,24,25)	*Bhārṅgī = Bhārgī*

Contd.

Table 1 — Medicinal and healing plants in the *Jvaracikitsā —(Contd.)*

Sl. No.	Plant name	Family	Hindi name	Sanskrit name
28	*Coleus vettiveroides* Jacos. (25)	Lamiaceae	Sugandhabālā (7, 19, 24, 25) / Netrabālā (7)	*Udīcya=Bālaka* (19,24,25) = *Hrīvera* (15,24,25)
29	*Commiphora wighti* (Arn.) Bhand. (15, 22, 23, 24,25)	Burseraceae	Guggula (7, 23, 24, 25)	*Palaṅkaṣā*
30	*Coriandrum sativum* L. (15,16,18,19,20,23,24,25)	Apiaceae	Dhaniyā (7, 15, 16, 18, 19, 20, 23, 24, 25)	*Dhānyaka/ā = Dhāṇyam Kustumburu* (18,19,23,24, 25) = *Dhānyā*
31	*Curcuma longa* L. (15, 18, 15, 19, 22, 23, 25)	Zingiberaceae	Haldī (7, 18, 19, 21,22,23,24,25)	*Rajanī = Niśā = Haridrā*
32	*Cymbopogon citratus* (DC.) Stapf (15,18,19,24, 25)	Poaceae	Gandhatṛṇa (7,24)	*Sugandhitṛṇa*
33	*Cyperus rotundus* L. (15,16,18,19,21, 22, 23, 24, 25)	Cyperaceae	Mothā (15, 22, 23, 24, 25) / Nāgarmothā (7, 22, 23, 25)	*Mustā = Ghana Ambodhara* (24) = *Abda* (23, 24, 25) = *Payodhara* (18)
34	*Desmodium gangeticum* DC. (15, 18, 19, 22, 23, 24, 25)	Fabaceae	Sarivan (7, 19, 24)	*Sthirā=Śālaparṇī* (7,18,19,22,23,24,25)
35	*Dolichos biflorus* L. (15,16,18,19,22,23,24,25)	Fabaceae	Kulthī (7, 15, 19, 22, 23, 24, 25)	*Kulathī*
36	*Eclipta alba* Hassk. (15, 17, 18, 19, 23, 24, 25)	Asteraceae	Bhāṅgarā (7, 15,17,22,23,25)	*Bhṛiṅgarāja*
37	*Emblica officinalis* Gaertn. (15,16,17,18,19,22,23,24, 25)	Euphorbiaceae	Āmvala (7,15,16, 17,18,19,22,23, 24,25)	*Āmalakī = Dhātrī*
38	*Euphorbia thymifolia* L. (17,19,22, 23,24)	Euphorbiaceae	Dugdhikā (7,19,22,23,24)	*Dugdhikā*
39	*Feronia limonia* (Linn.) Swingle.(15,18,19,22,23,24,25)	Rutaceae	Kaitha (7, 19, 23, 24, 25)	*Dadhithya*
40	*Fumaria parviflora* Lam. (15, 19, 22, 23, 24, 25)	Papaveraceae (Fumariaceae)	Pittapāpadā (7, 15, 22, 24, 25)	*Parpaøaka= Parpaṭa*
41	*Garcinia pedunculata* Roxb. (22, 24, 25)	Clussiaceae	Amlavetasa (7, 22,24,25)	*Amlavetasa*
42	*Gentiana kurroo* Royle. (15, 22, 23, 24, 25)	Gentianaceae	Trāyamāṇā (7) = Kaḍū(22,23,24,25)	*Trāyamāṇā = Trāyantī*
43	*Glycyrrhiza glabra* L. *(15, 18, 19, 22, 23, 24, 25)	Fabaceae	Mulhaṭhī (7, 15, 19,22,23,24,25)	*Madhukam = * Yaṣṭimadhu* (15, 19, 24, 25)
44	*Gmelina arborea* Roxb. (15, 19, 22, 23, 24, 25)	Verbenaceae	Gambhārī (7,15, 19,22,23,24,25)	*Gambhārī*
45	*Hedychium spicatum* Buch.-Ham. (15, 19, 22, 23, 24, 25)	Zingiberaceae	Kacūra kākdā = Kacûra = Kapura kacari (7,19,23,24, 25)	*Śaṭi*
46	*Hemidesmus indicus* R. Br. (15,18,19,22,23,24,25)	Asclepiadaceae	Anantamūla (7, 18, 22, 25)	*Anantā = Sārivā (14,16,19,23, 24)*
47	*Holarrhena antidysenterica* Wall. (15, 18, 19, 22, 23, 24, 25)	Apocynaceae	Kuḍa (4, 19, 22, 23, 24, 25) = Indrayava = Indrajou	*Kuṭaja = Indrayava = Kaliṅga = Vatsaka = Indrabīja* (19, 22, 23, 24, 25)
48	*Hordeum vulgare* L. (15, 19, 21, 22, 24, 25)	Poaceae	Jou (7, 15, 16, 18,21,22,24,25)	*Yava*
49	*Inula racemosa* Hook.f. (15, 22, 23, 24, 25)	Asteraceae	Pushkarmūla (7,22,24,25)	*Puṣkara*
50	*Lens culinaris* Medic. (22, 24, 25)	Fabaceae	Masūra dal (7, 15, 24, 25)	*Masūra*
51	*Luffa acutangula* (L.) Roxb. (15, 18, 19, 22, 23, 24, 25)	Cucurbitaceae	Amaltāsa ? (7) Kośātakī (15,19, 22,23,24,25)	*Kṛtavedhana*
52	*Madhuca indica* J.F. Gmel. (15,18,19,22,23, 25)	Sapotaceae	Mahuvā (7,15,19, 23, 25)	*Madhūka*
53	*Marsdenia tenacissima* W.&A. (22, 24, 25) or *Helicteres isora* L. (15,17, 23)	Asclepiadaceae Sterculiaceae	Marodaphali (7) ?? Maruâbela (24,25)	*Mūrvā*
54	*Melia azedarach* L. (15, 18, 19, 22, 23, 24, 25)	Meliaceae	Mahānimba(7,15, 19,22,23,24,25)	*Mahānimba*

Contd.

Table 1 — Medicinal and healing plants in the *Jvaracikitsā* —*(Contd.)*

Sr. No.	Plant name	Family	Hindi name	Sanskrit name
55	*Mimosa pudica* L. (15, 19, 22, 23, 24, 25)	Mimosaceae	Lajjālu (7,22, 24)	*Kṛtaṅjalī*
56	**Mucuna pruriens* (L.) DC. Syn. *M. prurita* Hook. (17, 18, 19, 22, 23, 24, 25)	Fabaceae	Kouc (7, 19, 23, 24, 25)	*Vānarī = *Kapikachchhu* (19)
57	*Myrica nagi* Thunb. (1, 2, 17, 18, 21, 22)	Myricaceae	Kāyaphala (7,14, 18, 15,19,22,23,25)	*Katphala*
58	*Nardostachys jatamansi* DC. *(15, 19, 22, 24, 25)	Valerianaceae	Balchhaḍ (7, 25) = Māṁsī = Jaṭāmānsi (15, 19, 22, 25)	*Bâlaka ?? = *Māṁsī*
59	*Nelumbo nucifera* Gaertn. (15, 17, 19, 22, 23, 24, 25)	Nymphaeaceae	Kamala (7, 22, 24)	*Mṛṇālīn*
60	*Operculina terpethum* (L.) Silva Manso. (15, 18, 22, 23, 24, 25)	Convolvulaceae	Niśotha/ Vidhārā (7,15, 22, 25)	*Trivṛt = Śyāmā*
61	*Oroxylum indicum* Vent. (15, 19, 22, 23, 24, 25)	Bignoniaceae	Sonāpāthā=Aralu (7,22,23,24,25)	*Ṭiṇṭuka = Śyonāka*
62	**Oryza sativa* L. (15, 19, 23, 24, 25)	Poaceae	Raktaśalī chaval (7,15,19, 25)	*Raktaśālī = *Śālī =Taṇḍula*
63	*Pavonia odorata* Willd. (15, 19, 25)	Malvaceae	Hrīvera (7, 15, 19)	*Hrīvera*
64	*Peristrophe bicalyculata* Nees. (17, 22, 24, 25)	Acanthaceae	Kākajaṅghā (7, 22, 24, 25)	*Kākajaṅghā*
65	*Phyllanthus amarus* Schum. & Thonn. (22)	Euphorbiaceae	Bhūīāṁvalā (7,15, 19,22,23,24,25)	*Tāmalakī*
66	*Picrorhiza kurroa* Royle ex Bnth. (15, 19, 23, 24, 25)	Scrophulariaceae	Kuṭakī (7, 19, 22, 23, 24, 25)	*Tiktā = Kaṭukā Tiktaka-Rohinī = Kaṭurohiṇī= Rohiṇī*
67	*Piper chaba* Hunter. (22, 23, 24, 25)	Piperaceae	Gaja Pīppala (7, 18, 24, 25)	*Gajāhvā*
68	*Piper longum* L. (15, 19, 21, 22, 23, 24, 25)	Piperaceae	Pippalī = Pippalamūla(7,15, 19,21,22,23,24,25)	*Pippalī = Granthika = Kaṇā =Kṛṣṇā*
69	*Piper nigrum* L. (15, 19, 21, 22, 23, 24, 25)	Piperaceae	Kālīmirc (7, 19, 22, 23, 24, 25)	*Marica / Ūṣaṇa/ Śvetamārica*
70	*Pistacia chinensis* Bunge subsp. *Integerrima* Stewart (15,16,18,19,22,23, 24)	Anacardiaceae	Karkaṭaśṛṅgi = Kākadāsiṅgī (7,23,24)	*Karkaøa = Śṛṅgī*
71	*Pluchea lanceolata* Oliver & Hiern. (15, 22, 24, 25)	Asteraceae	Rāsnā (7,15,22,25)	*Rāsnā*
72	*Plumbago zeylanica* L. (15,18,19,21,22,23,24,25)	Plumbaginaceae	Citraka (7, 21, 22, 24, 25)	*Vahni*
73	*Polygonatum verticillatum* All. (22, 24, 25)	Alliaceae	Medā (7, 22, 24, 25)	*Medā*
74	*Premna serratifolia* Linn. (8, 14, 18, 19, 20)	Verbenaceae	Araṇi / Ganiyāra (7,15)	*Agnimantha*
75	*Prunus cerasoides* D. Don.(15,18,19,22,23,24,25)	Rosaceae	Padmākha (7, 23, 24)	*Padmaka = Paṭha*
76	*Pterocarpus santalinus* L. (15, 19, 23, 24, 25)	Fabaceae	Lālcandana (7, 16,19, 23, 24,25)	*Raktacandana*
77	*Pueraria tuberosa* DC. (14, 18, 22, 23, 24, 25)	Fabaceae	Vidārî-kanda (7, 19, 22, 23, 24, 25)	*Vidārī*
78	*Punica granatum* L. (16, 18, 19, 22, 23, 24, 25)	Punicaceae	Anāra (7, 15, 19, 22, 23, 24, 25)	*Dāḍima*
79	*Ricinus communis* L. (15, 18, 19, 22, 23, 24, 25)	Euphorbiaceae	Eraṇḍamūla (7, 19, 24)	*Eraṇḍa*
80	*Rubia cordifolia* L. (15,18,19,21,22,23,24,25)	Rubiaceae	Manjiṣṭhā (7, 22, 24)	*Manjiṣṭhā*
81	*Saccharum officinarum* L. (15,18,19,21,22,23,24,25)	Poaceae	Gannā (7, 15, 19, 22, 23, 24, 25)	*Ikṣu*
82	*Santalum album* L. (15, 19, 21, 22, 23, 24, 25)	Santalaceae	Candana (7,15,22) Safed candana (15, 19,22,23,24,25)	*Candana = Malaya*
83	*Saussurea lappa* C.B. Clarke (15,18,19,22,23,24,25)	Asteraceae	Kūṭha (7, 15, 19, 22, 23, 24, 25)	*Kuṣṭha*
84	*Sesbania grandiflora* Pers. (15, 19, 22, 23, 24, 25)	Fabaceae	Agastya (7, 18, 22, 24, 25)	*Muni*

Contd.

Table 1 — Medicinal and healing plants in the *Jvaracikitsā —(Contd.)*

Sl. No.	Plant name	Family	Hindi name	Sanskrit name
85	*Sida cordifolia* L. (8, 14, 18, 19, 20, 21)	Malvaceae	Khareṅtī (7, 15, 22, 23, 24, 25) = Bariyārī (7)	*Balā*
86	*Solanum indicum* L. (15, 19, 22, 25)	Solanaceae	Baḍikaṭerī (23,25) / Makoi (15,19, 23)	*Bṛhatī*
87	*Solanum xanthocarpum* Schrad & Wendl (15, 19, 22, 23, 25)	Solanaceae	Chhoṭikaṭerī (23, 25) / Kaṭelī (15, 19)	*Kaṇṭakārī = Kṣudrā = Kaṇṭakārīkā = Vyāghrī = Nidigdhīkā = Lakṣmaṇā*
88	*Stereospermum suaveolens* DC. (15, 18, 19, 22, 23, 24, 25)	Bignoniaceae	Pāḍhala (7, 15, 19, 22, 23, 24, 25)	*Pāṭalā*
89	*Swertia chirata* C.B. Clarke (16,19,22,23,24, 25)	Gentianaceae	Cirāyatā (7, 23, 24, 25)	*Kirātatikta = Kirātatiktak*
90	**Symplocos racemosa* Roxb. (15,18,19,22,23,24,25)	Symplocaceae	Lodhra (7, 15, 19, 22, 23, 24, 25)	*Lodhra = *Tilvaka*
91	*Terminalia belerica* Roxb. (15,17,19, 22, 23, 24, 25)	Combretaceae	Behḍā (7, 19, 22, 23, 24, 25)	*Bibhītaka*
92	*Terminalia chebula* Retz. (17, 18, 19, 22, 23, 24, 25)	Combretaceae	Hirḍa (19, 22, 23, 24,25)= Haraḍa (7)	*Harītakī = Abhayā=Pathy*
93	*Tinospora cordifolia* (Wild.) Miers. (15, 17, 18, 19, 22, 23, 24, 25)	Menispermaceae	Giloyâ (7, 15, 19, 22, 24, 25)	*Guḍūci = Amṛtā Kuṇḍalī= Chhinnaruhā = Chinnodbhava*
94	*Tribulus terrestris* L. (15, 18, 19, 22, 23, 24, 25)	Zygophyllaceae	Gokœura (7, 19, 23, 24)	*Gokœura = Śvadaṁṣṭrā* (22, 23, 24, 25)
95	*Tricholepis glaberrima* DC. (15, 19, 24)	Asteraceae	Brahmādaṇḍī (7, 15, 19, 24)	*Brahmādaṇḍī*
96	*Trichosanthes dioica* Roxb. (15, 18, 19, 22, 23, 24, 25)	Cucurbitaceae	Paṭola (leaf) (7, 15, 25)	*Paṭola*
97	*Trichosanthes palmata* Roxb. (23, 25)	Cucurbitaceae	Parvala pañcaṅga (7, 23, 24, 25) = Iṇdrāyaṇa = Baḍi Indrāyaṇa	*Paṭoli = Viśālā ??*
98	*Uraria picta* Desv. (18, 19, 22, , 23, 25)	Fabaceae	Pithavan (7, 19, 23, 24)	*Pṛśniparṇī = Kalaśī* (24)
99	*Vernonia cinerea* Less. (15, 24)	Asteraceae	Sahadevī (2, 7, 24)	*Sahadevī*
100	*Vetiveria zizanioides* L. Nash (15,18,19,22,23,24,25)	Poaceae	Khasa (7, 15, 19, 23, 24, 25)	*Uśīra*
101	*Vitex negundo* L. (18, 19, 22, 23, 24, 25)	Verbenaceae	Nirguṇḍī (7,15,19, 22, 23, 24, 25)	*Nirguṇḍī*
102	*Vitis vinifera* L. (19, 22, 23, 24, 25)	Vitaceae	Munnkā (7, 23, 25) = Dakha (7)	*Drākṣā = Mṛdvīkā*
103	*Withania somnifera* (L.) Dunal. (15,18,19,21,22,23,25)	Solanaceae	Aśvagandhā (7, 15,19,23,24,25)	*Aśvagandhā*
104	*Zingiber officinalis* Roxb. (Dry) (17, 19, 21, 22, 23, 25)	Zingiberaceae	Soṅṭha (7, 17, 19, 22, 23, 24, 25)	*Nāgara=Śuṅṭhī Viśvabheshaja= Śṛṅgaver = Viśva = Viśvauṣadha= Mahauœadha*
105	*Ziziphus jujuba* Mill. &Lamk. (15,19,21,22,23,25)	Rhamnaceae	Boriyā (7, 18, 19, 21, 23, 25)	*Kolā*

Hindi for the Sanskrit names *Paṭola* and *Paṭolī*; *Cirāyatā* in Hindi for Sanskrit names *Kirâtatikta* and *Bhūnimba*; *Lālcandana* as Hindi name for Sanskrit names *Candana* as well as *Raktacandana*; *Amaltâsa* as the Hindi word for *Rājavṛkṣa* and *Kṛtavedhana* in Sanskrit. Citing two different plant names in Hindi, which are different taxa for the same Sanskrit word at different occasions, e.g. *Sugandhabālā* and *Netrabālā* in Hindi for Sanskrit name *Udīcya*; *Devadāru* and *Dāruhaldī* in Hindi for *Dāru* in Sanskrit. Either due to wrong reading of the Sanskrit word or perhaps due to the experience of the editor to fit to the treatment condition, he has described a different plant in Hindi translation for a given Sanskrit name in the text that is known for a particular plant, e.g. in paragraph 31, the word is *Dhanvaka* in Sanskrit, which is translated to *Javāsā* in Hindi as reference to *Dhanva = Durālabha = Y/Javāsā* instead of considering or translating

Table 2 — Group names

Sr. No.	Plant name	Family	Hindi name	Sanskrit name
1)	*Swertia chirata* C.B. Clarke	Gentianaceae	*Kirātatiktādigaṇa*	*Kirātatiktādigaṇa*
	Cyperus rotundus L.	Cyperaceae	*Cirâyatâ*	*a) Kirātatiktaka*
	Tinospora cordifolia (Wild.) Miers.	Menispermaceae	*Nāgaramothā*	*b) Mustā*
	Zingiber officinalis Roxb. (Dry)	Zingiberaceae	*Giloya*	*c) Guḍūcī*
			Soṅṭha	*Nāgara*
2)	*Emblica officinalis* Gaertn.	Euphorbiaceae	*Triphalā*	*Triphalā **
	Terminalia belerica Roxb.	Combretaceae	*Āmvalā*	*a) Āmalakī*
	Terminalia chebula Retz.	Combretaceae	*Beḥḍa*	*b) Bibhītaka*
			Hirḍa	*c) Harītakī*
3)	*Desmodium gangeticum* DC.	Fabaceae	*Daśamūla*	*Daśamūla **
	Uraria picta Desv.	Fabaceae	*Sarivan*	*a) Śālaparṇī*
	Solanum indicum L.	Solanaceae	*Pithavan*	*b) Pṛśniparṇī*
	Solanum xanthocarpum Schrad & Wendl	Solanaceae	*Baḍikaṭerī*	*c) Bṛhatī*
	Tribulus terrestris L.	Zygophyllaceae	*Chhoṭikaṭerī*	*d) Kaṇṭakārī*
	Aegle marmelos Corr.	Rutaceae	*Gokṣura*	*e) Gokṣura*
	Gmelina arborea Roxb.	Verbenaceae	*Bela*	*f) Bilva*
	Stereospermum suaveolens DC.	Bignoniaceae	*Gambhārī*	*g) Gambhārī*
	Premna serratifolia L.	Verbenaceae	*Pāḍhala*	*h) Pāṭalā*
	Oroxylum indicum Vent.	Bignoniaceae	*Araṇi*	*i) Agnimantha*
			Sonāpāthā	*j) Śyonāka*
4)	*Azadirachta indica* A. Juss.	Meliaceae	*Nimba & Mahanimba*	*Nimbayugmam **
	Melia azedarach L.	Meliaceae		
5)	*Desmodium gangeticum* DC.	Fabaceae	*a) Śalaparṇī*	*Pañcamūli **
	Uraria picta Desv.	Fabaceae	*b) Prśniparnī*	
	Solanum. indicum L.	Solanaceae	*c) Baḍī kaṭerī*	
	Solanum. xanthocarpum Schrad. & Wendl.	Solanaceae	*d) Chhoṭī kaṭerī*	
	Tribulus terrestris L.	Zygophyllaceae	*e) Gokṣuṛa*	
6)	*Piper longum* L.	Piperaceae	*Pippalī & Gajapippalī*	*Pippalau/dvayam **
	Piper chaba Hunter.	Piperaceae		
7)	*Solanum. indicum* L.	Solanaceae	*Dono Kaṭeri*	*Bṛhatyau/Bṛhatīdvayam **
	Solanum xanthocarpum Schrad. & Wendl.	Solanaceae	*a) Baḍikaṭeri =Baḍipipala = Makoi*	
			b) Chhoṭikaṭeri / Kaṭeli = Chhoṭipipala	
8)	*Solanum. indicum* L.	Solanaceae	*Dono Kaṇṭakārī*	*Bṛhatyādigaṇa*
	Solanum. xanthocarpum Schrad. & Wendl.	Solanaceae		*a. Bṛhatīdvaym*
	Inula racemosa Hook.f.	Asteraceae	*Puṣkaramūla*	*b. Puṣkara*
	Clerodendrum serratum (L.) Moon	Verbenaceae	*Bhāraṅgī*	*c. Bhārgī*
	Hedychium spicatum Buch.-Ham.	Zingiberaceae	*Kacura*	*d. Śaṭi*
	Pistacia chinensis Bunge subsp. *integrrima* Stewart	Anacardiaceae	*Kākaḍāsingī*	*e. Śṛṅgī*
	Alhagi camelorum Fisch.	Fabaceae	*Yavāsa*	*f. Durālabha*
	Holarrhena antidysenterica Wall.	Apocynaceae	*Indrayava*	*g. Vatsaka*
	Trichosanthes dioica Roxb.	Cucurbitaceae	*Parval patta*	*h. Paṭola*
	Picrorhiza kurroa Royle ex Benth.	Scrophulariaceae	*Kuṭakī*	*i. Kaṭurohinī*

Contd.

Table 2 — Group names—*Contd.*

Sr. No	Plant name	Family	Hindi name	Sanskrit name
9)	*Zingiber officinalis* Roxb. (Dry)	Zingiberaceae	*Soṅṭha,*	*Vyoṣa*** = *Trikaṭu**
	Piper longum L.	Piperaceae	*Pippalī,*	
	Piper nigrum L.	Piperaceae	*Kālīmirc*	
10)	*Curcuma longa* L.	Zingiberaceae	*Haldī &*	*Haridrāvyām* **
	Berberis aristata DC.	Berberidaceae	*Dāṛuhaldī*	

* Synonyms taken from other sources to identify the textual plants.
** Only group names are mentioned in the text.
?? One identification could be appropriate at that point of the text.

Table 3—Sanskrit names of the plants as per the order of *Devanāgari* alphabets

Agnimantha (74)
Ajamodā (20)
Ativiṣā (2)
Anantā (46)
Apāmārga (1)
Abda (33)
Abhayā (92)
Amara (22)
Amṛtā (93)
Ambodhara (33)
Amlavetasa (41)
Ariṣṭa (12)
Aśvagandhā (103)
Āmalakī (37)
Āragvadha (21)
Ikṣu (81)
Indrabīja (47)
Indrayava (47)
Udīcya (28)
Uśīra (100)
Ūṣaṇa (69)
Eraṇḍa (79)
Katphala (57)
Kaṭuka/ā (66)
Kaṭurohiṇī (66)
Kaṇṭakarī (87)
Kaṇṭakārikā (87)
Kaṇā (68)
Karkaṭa (70)
Kalaśī (98)
Kaliṅga (47)
Kākajaṅghā (64)
Kāravī (19)
Kirātatikta (89)
Kirāta-tiktaka (89)
Kiramālaka (21)
Kuṭaja (47)
Kuṇḍali (93)
Kulathī (35)
Kuṣṭha (83)
Kustumburu (30)
Kṛtāñjalī (55)
Kṛtavedhana (51)
Kṛṣṇā (68)
Kolā (105)
Kṣudrā (87)
Gajāhvā (67)
Gambhārī (44)
Guḍūcī (93)
Gokæura (94)
Granthika (68)
Ghana (33)
Candana (82)
Chinnodbhavā (93)
Chinnaruhā (93)
Ṭiṇṭuka (61)
Tikta-rohiṇī (66)
Tiktaka-rohinī (66)
Tiktā (66)
Taṇḍula (62)
Tāmalakī (65)
Tilvaka (90)
Trāyantī (42)
Trāyamāṇā (42)
Trivṛt (60)
Dadhithya (39)
Dantī (14)
Dāḍima (78)
Dārvī (15)
Dāru (15, 22)
Dugdhīkā (38)
Durālabha/ā (7)
Drākṣā (102)
Devakāṣṭha (22)
Devadāru (22)
Dhānyaka (30)
Dhānyam (30)
Dhānyā (30)
Nākulī (11)
Nāgara (104)
Nidigdhīkā (87)
Nimba (12)
Nirguṇḍī (101)
Niśā (31)
Paṭola (96)
Paṭolī (97)
Paṭha (24)
Pathyā (92)
Padmaka (75)
Payodhara (33)
Parpaṭa (40)
Parpaṭaka (40)
Palaṅkaṣā (29)
Pāṭalā (88)
Pāthā (24)
Pippalī (68)
Punarnavā (16)
Puṣkara (49)
Priyaṅgu (18)
Pṛśnaparṇī (98)
Balā (85)
Bālaka (28, 58)
Bijapuraka (26)
Bibhîtaka (91)
Bilva (5)
Brahmādaṇḍī (95)
Brāhmī (13)
Bṛhatī (86)
Bhārgī (27)
Bhāṛṅgī (27)
Bhunimba (9)
Bhṛṅgarāja (36)
Madhukam (43)
Madhūka (52)
Manjiṣṭhā (80)
Marica (69)
Malaya (82)
Masūra (50)
Mahauæadha (104)
Mahānimba (54)
Mātuluṅga (26)
Māṁsī (58)
Medā (73)
Muni (84)
Mustā (33)
Mūrvā (53)
Mṛṇālīn (59)
Mṛdvīkā (102)
Yava (48)
Yavāsa (7)
Yāsa (7)
Raktacandana (76)
Raktaśālī (62)
Rajanī (31)
Rasona (8)
Rājavṛkṣa (21)
Rāsnā (71)
Rohiṇī (66)
Lakṣmaṇā (87)
Laśunam (8)
Lodhra (90)
Vaca/ā (3)
Vahni (72)
Vatsaka (47)
Vānarī (56)
Vāsaka (4)
Vāsā (4)
Vidārī (77)
Viśālā (25, 97)
Viśva (104)
Viśvabheshaja (104)
Viṣā (2)
Viśvauṣadha (104)
Vṛṣa (4)
Vyāghrī (87)
Śaṭi (45)
Śatāhvayā (10)
Śampāka (21)
Śālaparṇī (34)
Śirīṣa (6)
Śuṇṭhī (104)
Śyāmā (60)
Śṛṇgavera (104)
Śṛṅgī (70)
Śvadaṁṣṭrā (94)
Śvetamārica (69)
Śyonāka (61)
Ṣaḍgranthā (3)
Sarœapa (17)
Sahadevī (99)
Sārivā (46)
Siddhārtha (17)
Sugandhitṛṇa (32)
Surataru (22)
Suradāru (22)
Surā (22)
Sthirā (34)
Haridrā (31)
Harītakī (92)
Hima (23)
Hrīvera (63)
Group names
Kirātatiktādigaṇa
Triphalā
Daśamūla
Nimbayugmam
Pañcamūlī
Pippalau/dvayam
Bṛhatyau
Brhatīdvayam
Bṛihatyādigaṇa
Vyoṣa
Haridrāvyām

Dhanvaka to the correct form of *Dhānyaka* and its Hindi word as *Dhaniyā*. The Sanskrit names which have still some confusion in their correct Hindi equivalence and botanical identifications as per the present literature survey for the *Jvaracikitsâ* chapter are: *Murvā, Sugandhatṛṇa, Tilvaka, Lodhra, Śvadamṣṭrā, Medā, Brahmādaṇḍi, Bālaka, Udīcya, Kṛitavedhana, Kośātakī, Amaltāsa, Viśālā, Ajmodā, Nākulī, Vānarī, Anantā, Trivṛt, Paṭolī, Śatāhvayā, Ṭiṇṭuka/i,* and *Trikaṭu*.

The botanical identification of medicinal plants mentioned in the Sanskrit texts is not unanimous because of differential interpretation of the synonyms and also for the scribal variations found in the multiple sources of the texts[10,11]. There are differences in the *Nighaṇṭus* (medico-botanical glossaries) and commentaries of the same texts with respect to Sanskrit synonyms of a plant[12,13]. In addition, regional variations in the traditional herbal preparations for a disease based on the same Sanskrit medical text add more stress in the correct botanical identifications. Passing of a big time period and evolution of different languages during the said period and adoption of documenting the texts from oral tradition to written form perhaps have made the original names of the plants in several cases changed to some synonyms or to plants with similar medicinal properties even though they belong to different taxonomic groups. The other possibility of differential incorporation of names keeping the core content of the texts of the compendium unaltered could be the expansion of knowledge on medicinal plants with advance of science. The ambiguity continued also perhaps because of non-availability of any suitable ancient taxonomic or pharmacognostical record for the correct identification of these vernacular plant names. Research endeavours in tracing the original text, the original Sanskrit name of the plant and the data of the vegetations of the past for answering several such questions are undertaken by many institutions, organizations and individuals in the last century. The philological conclusions may not agree with the scientific answers. However, these differences need not reduce the perception and practices of traditional healthcare operations in the country/countries, for this being good to the mankind and to the environment[14].

Acknowledgement

Author sincerely acknowledge the financial support of J Gonda Foundation and the facilities provided by the International Institute for Asian Studies, Leiden University, The Netherlands to carry out this piece of research as a Post Doctoral Fellow during the year 2006.

References

1 Sharma PV, *Āyurveda kā vaijñānika itihāsa*, The Chaukhambha Sanskrit Studies, Vol 87, 1st edn, (Chaukhambha Sanskrit Series Office, Varanasi), 1975.

2 Meulenbeld GJ, *A History of Indian Medical Literature*, Vol II, (Egbert Forsten, Groningen, The Netherlands), 2000.

3 Tiwari DN, *Report of the Task Force on Conservation and Sustainable Use of Medicinal Plants*, (Government of India, New Delhi), 2004.

4 Carakasaṃhitā, *Agniveśa's treatise* refined and annotated by Caraka and redacted by Dëèhabala, edited-translated by Priyavrat Sharma, Vol II, Jayakrishnadas Ayurveda Series No 36, 1st edn, (Chaukhambha Orientalia, Vararansi/Delhi),1983.

5 Suśrutasamhitā, An English translation of The Suśruta Samhitâ based on original Sanskrit text translated and edited by Kunjalal Bhishagratna, Vol III, 2nd edn, (Chaukhambha Sanskrit Series Office, Varanasi), 1963.

6 Aṣṭāñgahṛdayam, Vâgbhata"s Aṣṭāñgahṛdayam; translated by KR Srikantha Murthy), Vol II, Krishnadas Ayurveda Series 27, 1st edn, (Krishnadas Academy, Varanasi), 1992.

7 *Mādhavacikitsā*, *Acarya-Mādhavakar viracita Mādhavacikitsā Bharatī Bhaṣātīkā vimarśa vibhuṣitā*, edited by Sohanlal Dādhīcha, 1st edn, (Shri Bhanvarlal Dugad Āyurveda Vishvabharati, Sardarsahar, Rajasthan), 1979.

8 Carakasaṃhitā, Agniveśa's treatise refined and annotated by Caraka and redacted by Dṛḍhabala; edited-translated by Priyavrat Sharma, Vol I, Jayakrishnadas Ayurveda Series No 36, 1st edn, (Chaukhambha Orientalia, Vararansi/Delhi), 1981.

9 Chopra RN, Chopra IC, Handa KL & Kapur LD, *Indigenous Drugs of India*, 2nd edn, (UN Dhur & Sons Pvt Ltd, Calcutta), 1958.

10 Meulenbeld GJ, *The Mâdhavanidâna and its chief commentary* (Chapter 1–10, introduction, translation and notes), (EJ Brill, Leiden, the Netherlands), 1974.

11 Meulenbeld GJ, A quest for poison-trees in Indian literature, along with notes on some plants and animals of the Kauṭilīya Arthśāstra, In: *Ronald E Emmerick in memoriam piam*, 2006, 1-56

12 Sharma PV, *History of Medicine in India*, 1st print, (The Indian National Science Academy, New Delhi), 1992.

13 Raghunathan K & Dube SD, *Dravyaguña* (Pharmacology), In: *History of Medicine in India*, by PV Sharma, (Indian National Science Academy, New Delhi), 1992, 391-397.

14 Meulenbeld GJ, Proc Int workshop Priorities in the Study of Indian Medicine, (Institute of Indian studies, University of Groningen, The Netherlands), 1984.

15 Chopra RN, Nayar SL & Chopra IC, *Glossary of Indian Medicinal Plants,* (Publications & Information Directorate, New Delhi), 1956.

16 Collett Henry, *Flora Simlensis* (Calcutta), 1902.

17 Drury Harber, *Hand book of the Indian Flora: being a guide to all the flowering plants hither to described as indigenous to the continent of India*, Vol 1, 2 & 3, (Bishen Singh Mahendra Pal Singh, Dehradun), 1982-83.

18 Monier Monier-Williams, *A Sanskrit–English Dictionary, Etymologically and philologically arranged with special*

reference to cognate Indo-European languages, 1st Indian edition, (Sri Satguru Publication, Delhi), 1993.

19 Nadkarni AK, *Indian Materia Medica* (revised and enlarged), 3rd edn, Vol I, (Dootapapeshwar Prakashan Ltd, Panvel), 1954.

20 Pandey Gyanedra, *Medicinal Flowers*, (New Delhi), 1992.

21 Roxburgh William, *Flora Indica; or description of Indian plants*, edn 1874, (Thacker, Spink and Co, Calcutta), (reproduced 1975).

22 Sharma PC, *Database on Medicinal Plants Used in Āyurveda*, Vol 1-7 (Central Council for Research in *Āyurveda* and *Siddha* (CCRAS), Govt of India, New Delhi), 2001-2005.

23 Sharma PV, *Dravyaguṇa Vijñāna*, Vol II & III, Vidyābhavan Āyurveda Granthamālā (Chowkhamba Vidya Bhawan, Banarasi), 1956.

24 Sharma PV, Dravyaguṇakoṣaḥ, Acharya Priyavrat Sharma, Ayurveda Series No 2, (Chowkhamba Orientalia, Banarasi/New Delhi), 2003.

25 Singh Thakur B & Chunekar KC, *Glossary of Vegetable Drugs in Bṛhattrayī*, The Chaukhambha Sanskrit Studies, Vol 87, 1st edn (Chaukhambha Sanskrit Series Office, Varanasi), 1972.