



Kaiyadeva Nighantu: A Source of Information for Bioinvasion In India

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Abstract:

Ancient Indian Sanskrit scriptures although concerned with contents of medicinal utilities, they are also source of information in other compartments of science. They present inventory of Kaiyadeva Nighantu authored by Kriyadava (1450 AD.) revealed some exotic floral elements which can be interpreted from the viewpoint of plant invasion (bioinvasion) in India during earlier centuries. A total of 24 plant species belong to 21 genera and 16 families of angiosperms. They are either dicotyledons (19 species, 16 genera and 13 families). They shared a major part of bioinvasion. The monocotyledons taxa (05 species, 05 genera and 03 families) have comparatively played a little role invading Indian territory. They belongs to either Old and New Worlds and hailed from various continents, countries, islands, etc. The results obtained may be utilized while implementing measures for management and conservation of Indian biodiversity.

Key Words: Kaiyadeva Nighantu, Exotic Plants, Bioinvasion, India.

Introduction:

Kaiyadeva Nighantu is authored by Kaiyadev in 1450 AD. It is earlier named as 'Pathyapathyavibodhak'. Dietary aspect is also emphasized and hence number of plants are more in this lexicon. It is divided totally in nine groups in which the last ninth group alternative names are prescribed. It is different from Charak Samhita and hence very special in nature. Total medicinal plants are treated under 'Aushodh' group.

Methodology:

The Sanskrit plant names are evaluated for their equivalent botanical binomials from the literary source *viz.*, Kaiyadeva Nighantu of Acharya Kaiyadeva edited by Sharma and Sharma (2009). After certainty of their identification on modern scientific line, they are assigned to their respective families. The information *w.r.t.* habit and status *viz.*, wildness and cultivated is documented. Their exotic status is inferred on the basis relevant

taxonomic literary source as mentioned against each of them (Table-I). The information so obtained is limelighted to discuss plant invasion in India.

Results & Discussion:

India is endowed with rich biodiversity as well as cultural and curative diversity. These diversities are intimately connected with each other. Ayurvedic literature is inherited since Vedic and Post-Vedic periods. Four Vedas, various Samhitas and Nighantus are the foundations of modern Indian system of medicine, the Ayurveda. All these contain plant species, apart from minerals and animal substances as curing drugs. The medicinal system was initially rather crude or in primitive form and evolved over times and ended in more rational and scientific system of medicine. The present author paid attention to these ancient scriptures from the standpoint of plant invasion in India. One such important source of information on this line is the Kaiyadeva Nighantu authored by Kaiyadeva in 1450 AD. The floral, elements have been examined for their nativities. The report of which is being presented in this communication.

Acharya Kaiyadeva composed the said lexicon in 1450 AD. It was also named as 'Pathyapathya-Vibodhak' as it emphasized more dietic aspect. The present author assessed this lexicon from the viewpoint of bioinvasion in India in ancient past. Each plant species is pinpointed for their exotic status after consulting relevant taxonomic literature. As many as 24 exotic plant species are ascertained pertaining to 21 genera and 16 angiospermic families. Of these, the dicotyledonous taxa shared major segment in bioinvasion in India (19 species, 16 genera and 13 families), whereas the monocotyledonous ones played relatively a minor role in invading India in ancient past (05 species, 05 genera and 03 families). They are wild (12 species) or cultigens (11 species). A single species is a cultigen and also runs wild in nature. On habital categorization, they turned out to be trees (08 species), shrubs (05 species), climbers (01 species) and herbs (10 species). The herbaceous floral elements, however, played a major role in bioinvasion. Although, Kaiyadeva pointed out their medicinal utilities, they are also useful for various purposes e.g. ornamental, vegetable, religious, spices and condiments, dyes, aromatics, etc., besides as shade trees.

It is interesting to note that, in ancient past, the invading species in India pertained to both Old as well as New Worlds. They are hailed from various continents, countries, islands, specific geographical regions, etc. Such as: Africa (05), Asia (Excl. India) (07), Europe (03) and Australia (01). Other regions contributed for 03 exotic species e.g. China, for 02 exotic species e.g. Persia, Afro-Asian and Mediterranean Region. Other regions shared a single exotic plant species such as Brazil, Argentina, Japan, Malaya, Mongolia and Indonesia.

The fund of data so obtained is an authentic record of Indian biodiversity although of foreign origin. These floral elements can be interpreted, nay thought evidence of plant invasion in India in earlier centuries. Some plant taxa were obviously brought in India for medicinal purpose, but they are also useful for various other purposes sustaining human-life in India in the past and even in modern era. Wild plant species appear to have invaded naturally or by negligence during various human activities and migration. The information about these alien plant species is beneficial while extending control measures to manage and conserve Indian biodiversity.

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Table-I: Exotic Plant Species In Kaiyadeva Nighantu

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
1.	Arka	<i>Calotropis procera</i> (Ait.) R.Br. Asclepiadaceae	W	Shrub	(i) Tropical Africa: Reddy, 2008; Chandra Sekar, 2012. (ii) Persia & Africa: Almeida, 2001.
2.	Shalmali	<i>Bombax ceiba</i> L. Bombaceae	W	Tree	(i) America & Australia: Mukhopadhyay & Chakraverty, 2008. (ii) Brazil & Argentina: Singh <i>et al.</i> , 2015. (iii) Africa: Gaikwad & Garad, 2015.
3.	Aragvadha	<i>Cassia fistula</i> L. Caesalpiniaceae	C	Tree	(i) North America: Debnath & Debnath, 2017. (ii) Tropical Asia: Mukhopadhyay & Chakraverty, 2008. (iii) West Indies: Sinigh <i>et al.</i> , 2015.
4.	Avartaki	<i>Cassia auriculata</i> L. Caesalpiniaceae	W	Shrub	Tropical America: Charan & Singh, 2018.
5.	Kancanara	<i>Bauhinia variegata</i> L. Caesalpiniaceae	C	Tree	China: Debnath & Debnath, 2017.
6.	Kasamarda	<i>Cassia occidentalis</i> L. Caesalpiniaceae	W	Shrub	South America: Chandra Sekar, 2012; Rajagopal & Panigrahi, 1965.
7.	Varuna	<i>Crataeva magna</i> (Lour.) DC. Capparidaceae	C	Tree	Tropical America: Medakkar & Sharma, 2016.
8.	Mulaka	<i>Raphanus sativus</i> L. Brassicaceae	C	Herb	(i) Western Asia: Purseglove, 1968. (ii) China, Japan & West Asia: Voight, 1845. (iii) Europe & Temperate Asia: Patil, 1995. (iv) Europe: John, 1891.

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
9.	Paribhadra	<i>Erythrina variegata</i> (L.) (Syn.E.indica Lam.) Papilionaceae	C	Tree	Malaysia: Medakkar & Sharma, 2016b.
10.	Punnaga	<i>Calophyllum inophyllum</i> L. Clusiaceae	W,C	Tree	(i) East Africa: Pullaiah & Rao, 2002. (ii) Tropical Asia: Mukhopadhyay & Chakraverty, 2008.
11.	Barbari	<i>Ocimum basilicum</i> L. Lamiaceae	C	Shrub	(i) Persia: Pulliah <i>et al.</i> , 2001. (ii) Afro-Asian: Patil, 2003.
12.	Kumari	<i>Aloe vera</i> (L.) Burm.f. (Syn.A.barbadensis Mill.) Liliaceae	C	Herb	(i) North America: Patil, 2003; Naik, 1998. (ii) America: Yadav & Sardesai, 2002. (iii) Mediterranean Region: Bailey, 1949.
13.	Gambhari	<i>Gmelina arborea</i> Roxb. Verbenaceae	C	Tree	Malaya: Medakkar & Sharma, 2016a.
14.	Nirgundi	<i>Vitex negundo</i> L. Verbenaceae	W	Shrub	North China & Mongolia: Bailey, 1949.
15.	Kakamchi	<i>Solanum nigrum</i> Linn. Solanaceae	W	Herb	(i) Tropical America: Debnath & Debnath, 2017; Chandra Sekar, 2012. (ii) Europe & America: Almeida, 2001.
16.	Lashun	<i>Allium sativum</i> Linn. Liliaceae	C	Herb	(i) Europe: Naik, 1998; Patil, 2003. (ii) Central Asia: Shah, 2014.
17.	Nagbala	<i>Sida cordata</i> (Burm. f.) Borss. Malvaceae	W	Herb	(i) Asia (Excl. India): Sheikh & Dixit, 2017. (ii) South America: Naqshi <i>et al.</i> , 1988.
18.	Varahi	<i>Dioscorea bulbifera</i> Linn. Dioscoreaceae	W	Climber	Asia (Excl. India): Stewart, 1972.

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19.	Usuk-shwet	<i>Trianthema portulacastrum</i> L. Aizoacea	W	Herb	Tropical America: Quereshi <i>et al.</i> , 2014.
20.	Durva	<i>Cynodon dactylon</i> (L.) Pers. Poaceae	W	Herb	Tropical Africa: Debnath & Debnath, 2017; Wagh & Jain, 2015.
21.	Markavah	<i>Eclipta prostrata</i> (L.) Linn. Asteraceae	W	Herb	South & Tropical America: Patil, 1990; Reddy, 2008.
22.	Katrunam	<i>Cymbopogon martini</i> (Roxb.) Wats. Poaceae	W	Herb	(i) Afro-Asian: Naik, 1998. (ii) Africa: Yadav & Sardesai, 2002.
23.	Agastya	<i>Sesbania grandiflora</i> (L.) Poir. Papilionaceae	C	Tree	Indonesia: Patil, 1995; Shetty & Singh, 1987.
24.	Tulasi, Surasa, Gramya, Gowri, Bhuteghi	<i>Ocimum tenuiflorum</i> L. (Syn.O.sanctum L.) Lamiaceae	C	Herb	Northern Coastal Belt of Mediterranean Region: Swamy, 1973.