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Atharveda In The Perspective Of Ancient Plant Invasion In India

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Abstract:

Vedas are thought heritage of India. These Sanskrit ancient treatises stand as sources of information from different compartments of human-life. The hymns in Atharveda are replete with Sanskrit names of herbs. It is rich in medico-religious approach. This attempt is aimed at revealing biodiversity especially exotic taxa in it invaded in Indian subcontinent in ancient period. Total 27 alien species pertaining to 27 genera and 19 families of angiosperms are revealed. Of these, 12 species are found still under cultivation, whereas 15 species have naturalized and form an integral segment of present Indian biodiversity. The former reflects partly the status of economy and human sustenance in Vedic period of India. This investigation may aid and add in history of bioinvasion on Indian subcontinent and also help in better management of Indian biodiversity and its conservation.

Key Words: Atharveda, Exotic Plants, Plant Invasion, India.

Introduction:

India is well-known for its richness of culture and biodiversity. A vast literature has accumulated on these two aspects since ancient times in various Sanskrit scriptures. Vedas are the foremost and most ancient literary treasures of knowledge and being studied worldwide to unlock wisdom, experiences and observations of the then Indians or Aryans Such ancient Indian treatises provide us way of human life, the erstwhile environment and the cultural foundations. In view of these, it is not wonder that one's interest is not aroused in the studies of plant world. In earlier attempts, such Indian ancient Sanskrit scriptures have been investigated (c*f*.Patil, 2017a,b; 2018a,b; 2019a,b,c; 2020; 2021a,b,c,d,e; 2023). The present account is on the same line to unearth the plant diversity embedded in the verses of Atherveda with particular emphasis on alien plant taxa to limelight bioinvasion on Indian landmass in ancient period. Atharveda is one of the four Vedas of Hindu literature. Previously, it was called 'Atharvangirasah' since it was contributed by two Rishis (Sages) *viz.*, Atharvan and Angira. The former word is meant 'holy magic bringing happiness' (containing formulae for curving human afflictions), whereas the latter is denoted for 'hostile or black magic' (including remedies combating rivals,

enemies, magicians, etc.) We are mainly indebted to the Atharveda for knowledge of Vedic medicine and herbs. A fair number of plant species are so entwined in various Sanskrit verses (hymns) in Atharveda. These are being encoded in this communication knowing plant invasion in the ancient Indian period.

Methodology:

The data on plant species has been accrued emphasizing Sanskrit plant names from the sources *viz.*, (i) Hymns of The Atharveda (Vol.I-II) (Griffith, 1968) and (ii) The Atharveda (Sanskrit Text With English Translation) (Devi Chand, 1995). The Sanskrit names are studied in view of equivalent botanical (scientific) names for each one and then deciphered their respective family. The alien nature is decided on the basis of relevant taxonomic literature as mentioned against each species in the Table-I. The data so obtained is interpreted from the standpoint of plant invasion in ancient period f India.

Results and Discussion:

Total 288 plant species are reported from Atharveda (Sharma 1993). This investigation yielded as many as 27 exotic species belonging to 27 genera and 19 angiospermic families. Of these, dicotyledons have major shape (22 species, 22 genera and 17 families), whereas the monocotyledons played relatively lesser role in bioinvasion (05 species, 05 genera and 02 families). These taxa can be further categorized based on their habit such as: (i) herbs (17), (ii) climbers (06), (iii) trees (02) and (iv) shrubs (02). The figures in parenthesis stand for number of species. The woody taxa e.g. lianas, trees and shrubs are rather perennial sources, whereas the herbaceous ones are seasonally available for mankind. It is worth to note further that out of total 28 exotic species, 12 species are found under cultivation even in modern era. The wild species are fairly represented and are an integral part of Indian biodiversity. A single species is cultivated and also runs wild. They belong to different 24 geographical regions, continents, countries, mountains and islands such as: Africa (09), America (08), Asia (Excl. India) (03), Europe (03), Mediterranean region (02) and Fertile crescent (02). The others *viz.*, Persia, Ethiopia, Java, Japan, Arabia, Afghanistan, Turkistan, Siberia, West Indies, Asia minor, Middle East, Caspian Sea Region, Tropical and Subtropical regions and both hemispheres contributed for a single species each. The distant American continent also shared well in plant invasion in ancient Indian landmass. The cultigens (12 species) certainly added in economy in Vedic period. The wild species (15 species) although are an integral part of Indian biodiversity, some of these are invasive and troublesome in recent times.

Biologists conceived bioinvasion as a form of 'biological pollution'. Invasion by the alien species has been also thought as the second worst threat to native biodiversity after habit destruction (Patil, 2024). Bodiversity is the mainstay for human-being and also crucial for all ecosystems in the functioning. Plant species invade in a particular landmass negligently or naturally. They have been also introduced intentionally to obtain economic benefits from them for mankind and for his sustenance. Some of these taxa occupying a new place or habitats become invasive and troublesome to people of the land invaded. At this circumstance, it is necessary to know the state of bioinvasion in a particular geographical area or country for better management of biodiversity and its conservation. The present author tendered results of his investigations on the same line as stated earlier. Atharveda particularly contains 'Materia Medica' derived from plant and animal kinigdoms, besides some

minerals. The names of these medicinal sources are, however, are those of Sanskrit. These are equated with the recent Latin names and assessed for their exotic status consulting relevant taxonomic literature.

Conclusion:

In the Atharveda, one can notice separation between the magical and religious elements and the emperico-rational elements (Patil, 2020). A fair amount of information on herbal medicine is available in it. The hymns (mantras) also mirror the culture of the prehistoric non-Aryan Indians of the Indus valley (Patil, 2020). This account of alien plant species will help trace the trends and history bioinvasion on Indian subcontinent and will be helpful while embarking upon biodiversity management and its conservation.

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Table-I: Exotic Plant Species In Atharveda

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
1.	Arka	*Calotropis procera* (Ait.) R. Br. Asclepiadacee	W	Shrub	(i) Tropical Africa: Reddy, 2008; Chandra Sekar, 2012. (ii) Persia & Africa: Almeida, 2001a.
2.	Apamarga	*Achyranthes aspera* Linn. Amaranthaceae	W	Herb	(i) Tropics: Patil, 2021a,d (ii) South-East Africa or Africa: Singh *et al.*, 2015.
3.	Abayu, Abhaya, Asuri	*Brassica juncea* … (L.) (Czern. & Coss.) Brassicaceae	C	Herb	(i) Middle East & Neighbouring Region: Prakash, 1980. (ii Eastern Europe: Spect & Diedarichson, 2001.
4.	Alabu	*Lagenaria siceraria* (Mol.) Standl. Cucurbitaceae	C	C	Africa: Singh & Nigam, 2017; Patil, 2019a.
5.	Aparajita, Ajita	*Clitoria ternatea* Linn. Papilionaceae	W	C	Tropical America: Purseglove, 1968.
6.	Aralu	*Ailanthus excels* a Roxb. Simaroubacea	C	Tree	America: Kotresh & Siddeshwari, 2020.
7.	Bhanga	*Cannibis sativa* Linn. Cannabaceae	W	Herb	(i) Central Asia: Chandra Sekar, 2012. (ii) Caspian Sea Region & Caucasus Mountains: Watt, 1908.

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
8.	Balvaja	*Eleusine indica* (L.) Gaertn. Poaceae	W	Herb	Africa, Temperate & Tropical Asia: Patil, 2021e.
9.	Durva, Shanda-Durba	*Cynodon dactylon* (L.) Pers. Poaceae	W	Herb	Tropical Africa: Debnath & Debnath, 2017; Srivastava *et al.*, 2014.
10.	Patha	*Cissampelos pareira* Linn. Menispermaceae	W	C	South America: Rajagopal & Panigrahi, 1965; Patil, 2021c.
11.	Tila	*Sesamum indicum* Linn. Pedaliaceae	C	Herb	Dogra Africa, 2011.
12.	Ucchusma (Kapikacchu)	*Mucuna prurens* (L.) DC. Papilionaceae	W	C	America: Singh & Nigam, 2017.
13.	Vacha, Vaca	*Acorus calamus* Linn. Araceae	C	Herb	(i) Europe: Almeida, 2009b. (ii) Southern Asia, Central & Western North America: Novak, 1966.
14.	Yava	*Hordeum vulgare* Linn. Poaceae	C	Herb	(i) Ethiopia: Fekadu *et al.*, 2021 (ii) Fertile Crescent: Badr *et al.*, 2000.
15.	Jivant	*Amaranthus cruentus* L. (Syn.A.paniculatus Linn.) Amaranthaceae	C, W	Herb	North & South America: Stewart, 1972

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
16.	Apaskambha	*Benincasa hispida* (Thunb.) Cong. Cucurbitaceae	C	C	(i) Java: Patil, 1995, 2003. (ii) Japan & Java: De Candolle, 1959.
17.	Ajashringi	*Cleome gynandra* Linn. Capparidaceae	W	Herb	(i) Tropical America: Reddy, 2008; Patil, 2017b. (ii) Africa: Hewson & Thompson, 1993.
18.	Kankkanak	*Datura stramonium* Linn. Solanaceae	W	Herb	(i) Tropical America: Chandra Sekar, 2012. (ii) Paleotropical: Singh & Srivastava, 2000. (iii) America: Patil, 2017a.
19.	Bhingraj	*Eclipta prostrata* (Linn.) Linn. Asteraceae	W	Herb	South & Tropical America: Reddy, 2008; Patil, 1990; Chandra Sekar, 2012.
20.	Jesthi-Madhu	*Glycyrrhiza glabra* Linn. Papillionaceae	W	Shrub	Arabia, Persian Gulf, Afghanistan, Turkistan, Asia Minor & Siberia: Rejiv Kamal, 1998.
21.	Atasi	*Linum usitatissimum* Linn. Linaceae	C	Herb	(i) Mediterranean Region: De Candolle, 1959. (ii) Europe: Dar *et al.*, 2002.
22.	Eranda	*Ricinus communis* Linn. Euphorbiaceae	C	Tree	(i) Tropical Africa: Yadav & Sardesai, 2002; Lesley, 2020. (ii) Africa: Bailey, 1949.

Sr. No. (1)	Sanskrit Plant Name (2)	Botanical Name & Family (3)	Cultivated (C)/ Wild (W) (4)	Habit (5)	Nativity & Reference (6)
23.	Ghodhuma	*Triticum aestivum* Linn. Poaceae	C	Herb	(i) Fertile crescent: Singh & Nigam, 2017. (ii) Fertile Crescent & Middle East: Patil, 2017a.
24.	Madhavi	*Vitis vinifera* L. Vitceae	C	C	(i) Mediterranean Region: Sheikh & Dixit, 20017. (ii) Europe: Singh & Inam, 2015.
25.	Vadhaka	*Cassia fistula* L. Caesalpiniaceae	C	Tree	(i) North America: Debnath & Debnath, 2017. (ii) West Indies: Sigh *et al.*, 2015.
26.	Ajasrngi	*Cleome gynandra* L. [Syn. Gynandropis pentaphulla (L.) DC] Capparidaceae	W	Herb	(i) Tropical America: Reddy, 2008. (ii) Africa: Hewson & Thompson, 1993.
27.	Arundhati	*Sida cordifolia* Linn. Malvaceae	W	Herb	Tropical & Subtropical Regions & Both Hemispheres: Bhandari, 1978; Patil, 2019a.