

## ***Soma*, an Enigmatic, Mysterious Plant of the Vedic Āryas: An Appraisal**

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### **Abstract**

*Soma* plant has been a mystery since a long time. A number of plants were proposed as *Soma* in the past by various authorities. Wasson (1968) proposed and claimed with a specific approach that *Amanita muscaria*, a mushroom was the *Soma* of the *R̥gveda*. The juice of it was used as *Soma* drink. The Vedic Āryas (earlier called 'Vedic Āryans'), were the composer of *R̥gveda*. They used to compose hymns (*mantras*) to record their day to day experiences, their cultural life and adoration of their deities including *Soma*. It is speculated, when, *Soma* became rare and was difficult to find, then *Śyena*, the Falcon (a kind of bird) was used to collect and bring to their masters and it is well recorded in the *R̥gvedic* hymns. Perhaps, Wasson did not give any importance to this fact, which actually well supports his findings.

Nothing is known about the origin or migration of Vedic Āryas. They used ephedra, cannabis and poppy in preparation of *Soma* drink and is supported by an archaeological finding by Sarianidi, in 2003 AD. Sarianidi called the Vedic Āryas as Zoroastrians settled in Bactria and India. It is not certain what ingredients were used to prepare the *Soma* drink. In India, when they were in the mountainous region of Afghanistan and Kashmir, they used ephedra, which was plentifully available for preparation of *Soma* drink. With their work as they migrated in the Indian plains eastwards and southwards they had to use other locally growing plants as substitute or surrogates like: *Sarcostemma spp.*, *Ceropegia spp.*, *Periploca aphylla*, etc. because ephedra was not available.

The paper deals with the story as to how Wasson came to the conclusion that *Amanita muscaria* is the *Soma* of the *R̥gveda* and the plants used as *Soma* in different periods of time with the movements of the Vedic Āryas. Lastly, the present status of *Soma* in Indian religion & culture is briefly discussed, where it is worshipped and only mentioned in the hand books of daily worship used by the Hindu brāhmins (priests).

**Key words:** *Amanita muscaria*, *Cannabis sativa*, *Ceropegia sp.*, *Ephedra sp.*, *Falcons*, Indo-Āryas, Indo-Iranians, *Madhuca indica*, *Margiana*, *Nelumbo speciosum*, *Nymphaea sp.*, *Papaver sp.*, *Peganum harmala*, *Poppy*, *Ruta graveolens*, *Sarcostemma brevistigma*, Vedic-Āryas.

### **1. INTRODUCTION**

*Soma* was stated in *Veda* to be a divine and sacred plant, with its miraculous properties, which enlightened the worshipper and the person who drank its juice. It played an important role in the cultural life of the Vedic Āryas (earlier called 'Vedic Āryans') as a cult. It is stated that the hunt

for *Soma* plant in India began in 1784 (230 yrs ago), when the first English version of '*Śrī Bhagvadgītā*' reached Europe. The westerners, for the first time knew about this divine plant and they were much eager to know more about it and to procure it. But, no plant under the name of '*Soma*' was in use. A botanical hunt for the plant was then

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undertaken by the European botanists, vedists and theologians, and others, working at that time, in India. However, Hillebrandt, (1891) and Monnier-Williams (1899) were the first vedists to probe into the *Soma* and the drink prepared from it.

However, a number of plants were proposed as *Soma* by various authorities in due course of time such as; *Ruta graveolens*, Roxburgh (1814), *Sarcostemma brevistigma*, Roxburgh (1820-24), *Ephedra* sp., John Stevenson (1842), and others. which, are well documented in chronological order by Shah & Badola (1977) and Shah (2011). There were many speculations and theories when, Wasson (1968) published his findings that a mushroom, *Amanita muscaria* is the *Soma* of *R̥gveda* then a number of foreign and Indian workers began to give their comments and views in favour and against his findings. The main works to be cited are: Sharma (1969); Brough (1971); Ingalls (1971); Shah (1973); Yajnik (1973); Madanmohan (1975); Mahdihassan (1986, 1991); Sharma (1996); Padhy *et al.* (2001); Padhy & Dash (2004); Nene (2004); Nene & Putoo (2004); Nene & Shadhale (2004); Swami (2010) etc.

These publications have not at all changed the findings of Wasson that *Amanita muscaria*, is *Soma* of the *R̥gveda* or the Vedic-Āryas. The historical identity of the Vedic Āryas has been defined by Talageri (2000, p.72.): “According to the scholars, the Vedic Āryas were (later) a branch of the Indo-Iranians, one branch of these Indo-Iranians, the Indo-Aryans, migrated southeastwards into the northwestern parts of India; and thus commenced the story of the Āryas in India.” The Vedic Āryas originally used the ‘fly-agaric’ mushroom, and composed *R̥gvedic* hymns (*mantras*). And, when, ‘fly-agaric’ had depleted and was not readily available then, supposedly, they used Falcon (*Śeyna*) bird to collect it and bring it to their masters. When, they left their original homes and moved away, they used

*ephedra*, *cannabis* and poppy to prepare *Soma* drink. Later on the *cannabis* and *opium* was not available to them.

Lastly, when they moved and settled down in India in the Sindh plains and Indo Gangetic plains, they had to use the substitutes and surrogates like; *Sarcostemma brevistigma*, *Periploca aphylla*, *Ceropegia* sp., and other plants having similar properties. The article deals with *Soma* and related issues along with Wasson’s approach, findings and the history behind it.

## 2. VEDIC ĀRYAS

### 2.1. *R̥gveda* and the Vedic Āryas in their original home

According to Wasson, (1968), there were number of tribes in Central Asia and many such tribes are still living within this region and using a mushroom, the ‘fly-agaric’ *Amanita muscaria* for preparing a invigorating drink.

By about 5000 B C an intelligent group of a nomadic tribe, out of many had begun to memorize their feelings, observations of nature, experiences of life and environment, in divine revelation in form of hymns (*mantras*). They also began to record their important geographical identities, historical events, incidents, and their philosophical thoughts, and the deities to whom they adored and venerated especially, the plant, *Soma*, with a cult. They performed their specific religious rites, known as ‘*Homa*’. These oral well memorized poetic hymns were later known as “*śruti*” (Kak, 1987, p.232 & Nene & Sadhale, 1997, p. 177). Later on, these oral hymns were transcribed in a newly created language known as the Archaic (Prakrit) Sanskrit and later to the present day Sanskrit.

### 2.2. *R̥gvedic* information

*R̥gveda* as such, contains a veritable treasure of information, which sheds light on the

early history of the Vedic Āryas as a whole. The hymns are full of textual purity, which throw light on the religious and spiritual life of the people. Not only this, they also composed hymns on the worship and adoration of the plant *Soma*, which they had used to make an invigorating drink used in certain ceremonial occasions. According to Wasson (1972, p. 14) “The Vedic hymns marked a high point in the religious life of the Ārya people, in which the rapturous experience produced by *Soma* led the Brāhamaṇs to clothe the celebration of the sacrament in an amazing ritual, perhaps without parallel in history.”

In *R̥gveda*, which consist of 10 *Maṇḍala* or books, the total number of hymns are 10,552, out of which 1028 verses are on *Soma*. The IX *Maṇḍala* (Book) is well saturated with *Soma* description and there are total 114 hymns on *Soma*.

### 2.3. The Settlement of the nomadic Āryas or the Vedic Āryas

Before 2500 BC, the advanced Vedic-Āryas possibly, migrated from Central Asia towards South-West in Karakum desert in Turkmenistan by the side of the Murghab river. The same nearby locations have also been mentioned and shown in the maps as *Nagalok* (Shastri 1977, p. 67, .68, 170), *Harivarsha* (Shastri 1977, p.68), *Uttarkura* (Shastri 1977, p. 70).

This fact came to be known from an archaeological excavation at Gonur Tepe site, dating back to 2500 BC by a Greek-Russian archaeologist (Sarianidi, 2003). The cause of the migration from their original home is not understood. Possibly, it could either have been the depletion of the *Soma* plant, in their native place or they wanted to settle and leave their nomadic life, is not clear.

### 3. ĀRYAS AND ARCHEOLOGY

The Greek-Russian archaeologist Sarianidi (2003) for the first time, found a palace,

of about the size of a football field, a fortified mud-brick enclosure, and a massive shrine, the Āryas temples with fire altars (*havan kuṇḍa*), in which remains of ‘Sacrificed’ horses were also found (*Aśvamedh yajña*). And, for the first time, the remains of chariot with horses were also recovered. Not only this, big vessels were uncovered, in which *Soma* drink were kept. A pounding-hole was also found in which the ingredients of *Soma* drink were pounded. A big boiler was also found in which, the ritual drink *Soma*, was prepared. According to Prof Sarianidi, the remains of the ingredients were the ephedra, cannabis and poppy, which were used for preparing the *Soma-Homa* drinks. Ephedra was found in form of ephedrine alkaloids and poppy was found in form of seeds, Further, thickets of these plants were also found in abundance in the vicinity of the excavated temples of Margiana, suggestive that they had also cultivated these plants. According to Sarianidi (2003), the ingredients of *Soma* have been revealed for the first time. This fact came to be known from an archaeological excavation at Gonur Tepe, site, dating back to 2500 BC.

According to Sarianidi (2003), Gonour Tape was the culture but a lost civilization. This archaeological evidence was not only for the first time for the *Soma* (substitute) remains but also confirmed the theory that the Āryas had some connection with Central Asia.

After their migration to Bactria in north of Afghanistan, they continued composing and chanting their hymns which were well memorized and these were later known as ‘*śruti*’. The religious tradition of *Soma* worship was called ‘*hoama*’ by the Parsis. One group moved towards India crossing the Hindukush Mountain in the Himalayas and reached Sindh. At that time, Indus civilization of Mohenjo-Daro was in existence and possibly they fought with them and pushed them away towards south. First, they settled down by the side of the river Indus, which they called as

Sindh and then, simultaneously, they moved towards east to the Ganga–Jumna plains to give rise to what is now called the Hindu religion.

#### 4. SOMA IN ṚGVEDA

##### 4.1. The Soma of Ṛgveda

*Amanita muscaria*, the mushroom, was possibly used by the ‘Vedic tribe’. According to Wasson (1971), the tribes were roaming and also composing and reciting the hymns, in adoration and praise of *Soma* and the drink prepared from it is hard to believe. *Ṛgveda*, is a unique and most complicated composition ever made in the history of human poetic literature but the hymns are not in chronological sequence, and up to now no one has been able to correlate and collate, the description of *Soma* with each other hymns chronologically (Talageri, 2000). Wasson, (1968, 1971) had however observed and described the morphology and characters of *Amanita muscaria* with the description of *Soma*, from the Ṛgvedic hymns and matched and collated it with beautiful coloured photographs.

##### 4.2. The Description of Soma in Ṛgveda

The early references of *Soma* is found in all the Vedic literature with *Ṛgveda*, *Yajurveda*, *Sāma-veda*, and *Atharva-veda* and later in *Brāhmaṇas*. However, the first hymn of *Soma* is found in *maṇḍala* I, in *Ṛgveda*. But it cannot be the first, in chronological order, as the hymns were composed in different periods of time by different Ṛṣis and it is difficult to place the hymns in chronological order (Talageri, 2000). Talageri, (2000) has also made an effort to bring the hymns of 10<sup>th</sup> *maṇḍala* in their time of sequence.

However, the 1st hymn of 1st *maṇḍala* (Book) on *Soma* is as under;

वायवा याहि दर्शतेमे सोमा अरंकृताः ।  
तेषां पाहि श्रुधी हवम ॥

(ऋ.वे.मं.1अ1 सू. 2)

In this hymn prayer is made to ‘*Vāyu*’ that ‘*Soma* is prepared for you and accept the same and listen to our prayer.

#### 5. SOMA AND ITS IDENTIFICATION

##### 5.1. Wasson and his identification of Soma plant of Ṛgveda

A very few people know that R.G. Wasson, 1898-1986, was a Wall Street Banker and vice president of the J.P. Morgan Trust, and mycology was his past time job (Forte, 1997, p. 67). He continuously worked on ethno-mycology and hallucination properties of mushrooms, in Mexico with his wife, Valentina P. Wasson M.D., a pediatrician. After her death in 1958, and after his retirement in 1963, he continuously, worked alone in Central Asia, and had collected ethnobotanical information on the use of *Amanita muscaria*, the ‘fly-agaric’ mushroom from the Central Asian tribes, and, one day, on a casual discourse with his friend, Louis Renou, 1896–1966, an eminent, French Indologist and a Vedic scholar as how the tribes used the fly-agaric mushrooms. He described all the events such as how they collected and extracted the juice as a drink. He also showed him the photographs. Renou, at that time, was studying *Ṛgveda* and he suddenly said that Wasson was not speaking of the fly-agaric but of *Soma* of the *Ṛgveda*. Wasson for the first time, had heard about *Soma* and about *Ṛgveda*. After that he took help from Renou, in searching the description of *Soma* in the hymns of *Ṛgveda* and comparing and matching them with the fly-agaric, mushroom. The morphological features, colour, habit, etc. were matched and collated with the Sanskrit hymns translated by Louis Renou. As a result it was found that the hymns on *Soma* in *Ṛgveda*, had actually described the fly-agaric (*Amanita muscaria*).

As Wasson had many questions regarding Sanskrit words so he requested H.H. Ingalls, a leading Sanskrit scholar to recommend him a graduate student, who could help him with

questions about Sanskrit. He recommended the name of Wendy Dongier O' Flaherty, who answered many questions marvelously, which Wasson wanted to know. It is strange to know that she was at Cambridge, Massachusetts and Wasson was at his home in New York, a long distance, and they were discoursing with each other efficiently. Later, Wendy Dongier O' Flaherty did her Ph.D. in Sanskrit from University of Harvard and she went to Oxford from where she took another degree in Sanskrit Studies and then she became the Prof. of Sanskrit at University of Chicago (Forte, 1997, pp. 70, 71). Later, she had also contributed the IInd Chapter in the Wasson's book, "*Soma: The Divine Mushroom of Immortality.*"

Before writing his book, Wasson pursued research on *Soma* and *R̥gveda* and came to India four times. Thus his meticulous efforts and findings resulted in his famous book on *Soma*. His work is not based only on theoretical aspects but meticulously and critically into the historical and other scientific fields such as; mycology, ecology, ethnobotany, phytochemistry, pharmacology and toxicology, folklores art and poetry, and above all based on translations of the hymns of *R̥gveda* by Louis Renou and as a result identifying *Soma* as the 'fly-agaric' (*Amanita muscaria*), a unique



**Fig. 1.** Late Wasson and his wife Late Valentina P. Wasson M.D. worked together on mushrooms and in ethnomycology in Mexico. (Photo by Courtesy The Librarian, New York Botanical Garden, New York)

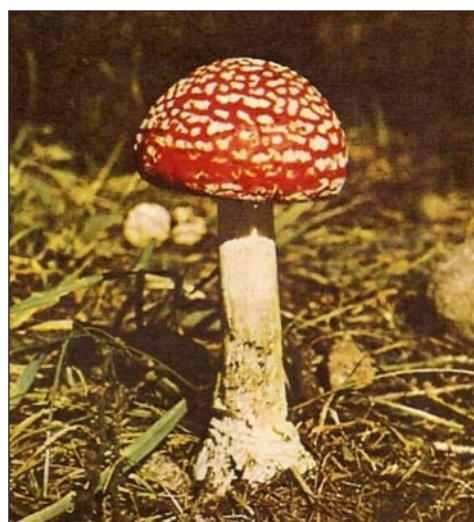
endeavored effort yet ever to be undertaken and witnessed.

## 6.2. Wasson's identification of *Soma* plant of *R̥gveda*

According to Wasson (1968 and 1971) the *Soma* plant as described in *R̥gveda* had no leaves no flowers or its blossoms, no fruit, seed, no roots. etc. There are many references to its stem '*amsu*' and to its cap '*murdhan*' or '*siris*'. Further, the plant grew on the mountains and was red, its unmixed juice was yellow or brown. In several Vedic metaphors, compared with the sun and fire, it has been called, the 'naval of truth' '*nābhi*'; and its stipe, is the stem or '*amsu*' or 'the pillar of the sky', '*ek pād*' or single footed.



**Fig. 2.** *Soma* plants growing in natural habitat in different stages of growth.



**Fig. 3.** *Soma* plant as 'Pillar of the sky' or "Mainstay of the sky" and as '*Ek pād*' single footed. (See hymn ऋ.वे. मं.13अ सू. 2).

When ripe, it has a fiery red cap and when it first appears, it is a fluffy ball dazzling and white as sun; when, it swells, it grows upward, it bursts into a white envelop and is brilliant like red fire.

It resembles, the Ṛgvedic swollen udder, in day, it appears, 'hari' (dazzling) and by night it becomes 'silvery white' as per Ṛgvedic description. All these descriptions have been beautifully illustrated through colored photographs by Wasson (1968, 1971). Not only this, the 'fly-agaric' juice description in *Rgveda* has also been well illustrated by a photograph. A number of points raised on the above issues and other issues have been well answered by Wasson, (1972) in his rejoinder.



**Fig. 4.** *Soma* juice extracted by Wasson from *Amanita muscaria* as 'Soma' or 'Soma-ras' of Vedic Āryas living in Central Asia

The most objectionable theory which Wasson proposed in his thesis on *Soma* was the Third Filter. In this he explained that the Siberian tribesmen not only chew the fly-agaric they occasionally drink the urine of himself or someone, who has eaten the fly-agaric. This practice still remains in Siberia and Wasson tried to correlate it with some of the hymns of *Rgveda*. Most of the scholars of Sanskrit, Ingalls (1971) and Brough (1983) have out rightly rejected this evidence. However, Wasson's work suggests new ways of looking at *Rgveda* and other *Vedas* and

new roads of enquiry into the meaning, has been set in.

### 5.3. Wasson's visit to India

Wasson while undertaking the research on *Soma* had spent several years, in the countries like Japan, China, and in European University centers and libraries, where most of the literature on Vedic-*Soma* was available. He also visited India in the years 1963 and 1965, 1966 and 1967 consequently. He visited Ranchi and the caves of Bagh (Madhya Pradesh) to search whether there were any sketches drawn by the cave dwellers on the walls of any mushroom and to find whether, *Amanita muscaria*, is distributed in India or not? (Dr.M.M.Payak Mycologist in 'Dharmayug' 26.10.1975 in Letter to the editor). Manilal (1980, pp. 321, 322) had reported that there are megalithic lateritic monuments in form of large mushroom, reported from different locations from Kerala and efforts were made to correlate these with *Psilocybe* and *Amanita*, mushrooms or with the *Soma* of Wasson. It was further reported that *Amanita muscaria* has been found in Tamil Nadu especially from the Nilgiri Hills in the southern India (Wasson & O'Flaherty, 1982, p. 601) .

This statement is doubtful and further requires re-survey of the region. It is well known that *Amanita muscaria* always grows under Birch trees, which acts as a host, and the birch trees do not grow in Nilgiris, in South India. Yes, it is reported that some other species of *Amanita* is found in South India.

It is to point out that *Amanita muscaria* is also not found in Kashmir of (British India) as there are no confirm reports of its occurrence. Though, in Afghanistan it has been well reported to occur, Wasson & O'Flaherty (1982, p. 601) quoting Afghanistan Journal (6:2;979).

### 5.4. Comments on Wasson's *Soma* plant

When his book was published, a number of reviews, both favorable and critical, were

published in a number of journals. According to Smith (2001, p. 13), eighteen reviews of his book were published in different journals of the world and seventeen validated his conclusion. The most lengthy review entitled “Wasson’s *Soma*” appeared in *The Journal of the American Academy of Religion* (Smith, 2001, p. 13). Only one very important critical review came out in the ‘*Bulletin of the School of Oriental & African Studies*’ (BSOAS), published from University of London by Boroughs, a professor of Sanskrit in University of Cambridge. He out rightly rejected Wasson’s findings that *Amanita muscaria*, a mushroom, is the *Soma* of the *Rgveda* (Wasson-Rejoinder, 1972).

Wasson wanted to reply on the comments of the review, in form of a rejoinder, and sent his reply to “BSOAS” but they out rightly refused to publish it, stating that they do not publish any rejoinders of the book-reviews. Then, Wasson sought their permission to publish the rejoinder in some other journal, and again they straight away declined.

Then, Wasson at the suggestion of Richard Evans Schultes, Professor of Botany & Director of the Botanical Museum privately published, a 58 pages rejoinder under the title, ‘*Soma* and the ‘fly-agaric’ from the Botanical Museum of Harvard University, Cambridge with a Forward by Schultes, in 1972. In this publication, Wasson replied to Borough’s comments one by one.

In this rejoinder there are many new facts, which were not present, in his book on *Soma*, (Wasson-Rejoinder 1972). (The author had also received a copy of the ‘Rejoinder’ from Wasson in exchange to his article published in ‘*Dharmayug*’ (1971) in Hindi).

## 6. SOMA COLLECTION BY ŚYENA (FALCON)

Presently, the hunting by Falcons is well known in number of Asian countries, like Mongolia, Tibet and Arabian countries,

Afghanistan, etc. Since time immemorial, the falcons are trained to capture small hunts like rabbits and other game-birds and after capturing they bring them to their masters. In similar way, during those days, these Falcons might have been trained and used to collect *Soma* the fly-agaric from the far away distances and from high mountains and bring them to their masters.

This is also to know that during that time, *Soma* was a valuable commodity and it was exchanged with the food, cows, horses and with the gold. However, Wasson had somehow missed the important hymns (references) of Śyena (Hawk) in the *Rgveda* which are available from 1<sup>st</sup> *maṇḍala* to 10<sup>th</sup> *maṇḍala*, and which narrates that the *Soma* plant was brought from the high mountains by the bird called Śyena or *Suparna* (beautiful feather bird). Monnier Williams (1899, p. 109) has stated that *Soma* was brought from the sky by a Falcon (Śyena), guarded by *Gandharva*. Later, Mukhopadhyay (1923, p. 189), Chitampalli, (1975) and Talageri (2000), also mentioned about role of Falcons in collecting and bringing *Soma* to their masters.

Talageri, has cited about 20 hymns (Talageri, 2000, p.74) that *Soma* was brought by an eagle (Falcon) to their masters. ‘or the Vedic people’. These are as follows: I.80.2,93.6; III.43.7; IV.18.13,26.4-7,27.3-4,38.2.; V.45.9; VI. 20.6, 46.13; VIII.82.9; 100.8., IX.68.6, 77.2, 86.24;87.6 and X.11.4,99.8,144.4-5.

However, two references for ‘Śyena’ have been cited by Chitampalli, (1975) and not cited by Talageri (2000), are as under;

आन्यं दिवो मातरिश्वा जभारा ।  
मथ्नादन्यं परिश्येनो अद्रेः ॥

(ऋ.वे.मं.1अ. 93सू.06)

अग्नि सोमा ब्रह्मणा वाव धानोरुं यज्ञाय चक्रथरु लोकम् ।  
अतस्त्वा रयिमभि राजानं सुक्रतो दिवः सुपर्णा  
अव्यथिर्भरत् ॥

(ऋ.वे. मं.9 अ.48 सू.3)

**Gist of the hymns:** *Soma* has been brought by Śyena (Falcon) or by a bird *Suparna* to *Indra*; It is brought from the sky; and from far away distances, from the top of the mountains, from the lands of the enemies, etc. It is brought, where *Varuṇa* had placed it; It is brought by the daughter of the Sun from the place, where the Rain- God, *Parāñjaya*, the father of *Soma* nourished it (the mushrooms always come up with the rains), when it was taken by the *Gandharvas*; *Indra* has brought it from the sky and from the mountains.

There is an important hymn in *maṇḍala* IX,77,2, which states that an archer *Kṛṣṇa*—not a protector of *Soma* is ready to shoot the Falcon. It shows that *Soma* was so much guarded. At present, the Falcons, have now become rare and endangered and efforts are being made to protect these in states like Mizoram, Arunachal Pradesh and Nagaland (Adam Halliday, 2014, p. 8).



**Fig. 5.** *Falco columbarius*, the Falcon (*Śyena* of *Rgveda*) was used to collect *Soma*, the Fly-Agaric mushroom from far distances and bring to his master

## 7. HISTORY OF SOMA AND THE ĀRYAS

The history of *Soma* plant is well associated with the history of the Āryas (the Vedic Āryas or the Indo-Āryas) and with the early Hindus of India. Different plants were used, when available, in different periods of times, and their uses have now completely forgotten and lost in the pages of history.



**Fig. 6.** *Śyena* or *Suparna* or *Gāyatri* names were used for Falcon, which collected *Soma* plant, when the āryas were in Central Asia

The finding of Sarianidi, (2003), clearly show that the Āryas had left the use of fly-agaric when they were at Margiana and were using ephedra, cannabis and opium to prepare the *Soma* drink. However, Wasson (1968, 1972 and 1983), was of opinion that the use of real *Soma* was left when they had reached the Indian plains, where *Amanita muscaria* was not available. This statement requires modification and correction. Possibly, this hymn was composed and used at Margiana, and not in Afghanistan or India, where they reached after 1000 yrs from Margiana and it is not possible due to a gap of such a long time. The hymn is as under which clarifies this fact:

सोमं मन्यते पपिवान यत् सपिषन्तयोषधिम् ।  
सोमं यं ब्रह्माणो विदुर्न तस्याश्नाति कश्चन ॥  
(ऋ.वे.मं. 10 अ. 85 सू. 3)

The *Soma* which the *Brāhmaṇs* (the priest) know, no other person knows and the people think that they have drunk *Soma* actually, they are not drinking the true *Soma*.

Wilson (1925) translated it as follows: “Men think that they drink *Soma*, when the *Soma* plant is pressed but the true *Soma* as known to *Brāhmins* (priests) no one gets a drink.” Further in the 9.47.4 it is stated “O-*Soma* the priest conceal



you. Hear the sound of stones but no one on earth gets you as drunk”.

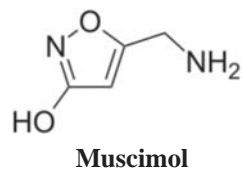
### 8. THE BEGINNING OF THE USE OF OTHER PLANTS

At Margiana, *Amanita muscaria* was not found, in its place were used ephedra, cannabis and opium in combination, as stated by Sarianidi (2003). What was the reason that the three psychoactive plants were used to prepare the *Soma* drink replacing *Amanita muscaria* is yet to be revealed. However, we would discuss in brief the chemistry and pharmacology of the plants, used to prepare the ‘*Soma*-drink’ starting with *Amanita muscaria*, ephedra, cannabis and poppy discussed below in brief:

#### 8.1 *Amanita muscaria*, the ‘fly-agaric’ as *Soma*

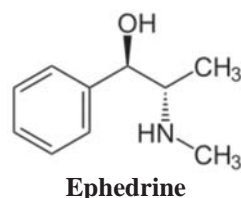
In fresh or Sun-dried, *Amantia muscaria* Ibotenic acid, is present ranging from 0.03% to 0.1% and when it dries, the Ibotenic acid changes to muscimol which is five times more powerful than Ibotenic acid and pharmacologically both are intoxicating and hallucinogenic in action. Schultes (1963, p. 20) had very well defined hallucinogens as: “These act on the central nervous system to bring about a dream-like state marked by extreme alterations in consciousness of self, in the understanding of reality, in the sphere of experience, and usually by serious changes in perception of time and space; they almost invariably induce a series of visual hallucinations, often in kaleidoscopic movement, usually in rather indescribably brilliant and rich and unearthly colors, frequently accompanied by auditory and other hallucinations and a variety of synesthesias”. It is well mentioned in R̥gvedic hymns that dried *Soma* was used, which was soaked in water and then it was pressed with fingers like the udders of the cows in milking and thus juice was extracted (Wasson 1968 and 1971).

The fly-agaric and cannabis both are hallucinogenic action.



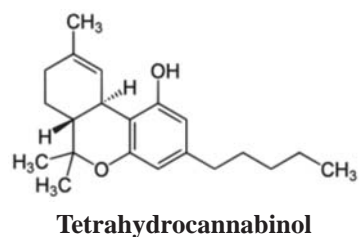
#### 8.2 Ephedra as a part of *Soma* drink

Its principal active ingredient is ephedrine, which is like amphetamine-and adrenalin like compound that potentially has powerful stimulant effects on the nervous system and heart. Like an amphetamine, ephedra increases both blood pressure and heart rate, decreases appetite, and makes the user feel energetic and enhances concentration, it is why it was used by the Buddhist monks. Possibly, the herb was used, in preparation of ‘*Soma* drink’ as a general stimulant for alertness and energy and as an appetite suppressant, and to give concentration, at the times, when the Buddhist monks and preachers were required to travel far and long distances to promulgate Buddhism (Shah 2005, p. 30).



#### 8.3 Cannabis as a part of *Soma* drink

It is also a psychotomimetic or hallucinogenic drug, the main active constituent which effects the mind is Tetrahydrocannabinol (THC), which is the primary psychoactive component of the Cannabis plant.



Seeing the use of Cannabis in many parts of India as a drink known as ‘*bhāṅg*’, Mukerjee

(1921-22) advocated that *Soma* plant was *Cannabis sativa*. Many agreed with his statement as there is a custom of cold-*bhāṅg* drink sold in number of northern cities in India. The preparation is like the *Soma* drink which gives pleasure and well-being. It has further been seen that *Cannabis* is very useful herb which also reported as a narcotic and hallucinogenic in action (Grotenhermen and Russo 2002).

#### 8.4 *Papaver* sp. as a part of *Soma* drink

At Margiana, *Papaver* species was used and which contains the main active chemical constituent Morphine and other alkaloids. Pharmacologically, the combined effect of all the alkaloids brings a feeling of euphoria or well-being followed by forgetfulness.



In general, the overall action of the above stated plants would have been as follows *Amanita muscaria* is a hallucinogenic in action; Ephedra is a powerful stimulant, decreases appetite, and makes the user feel energetic and enhances concentration; *Cannabis* is hallucinogenic and Poppy (*Papaver* sp) brings a feeling of euphoria or well-being followed by forgetfulness.

### 9. EPHEDRA AS SOMA

First of all, Stevenson, in 1842 identified *Ephedra* species (*Ephederaceae*) as *Soma* on the basis of plant being called as '*huma*' or '*suma*' and used in Afghanistan and Pakistan region, where it is still known under the above names (Shah 2011, p. 26). In Afghanistan, the decoction of the plant or tea of the plant is still used as an

stimulant, and sold in every crude drug shop under the name '*Huma*'. Later, a number of people also proposed *Ephedra* sp. as *Soma*. Earlier, Chopra, *et al* (Chopra 1958, p. 145), had considered *Ephedra intermedia* as *Soma* from which the favorite drink of the *Ṛṣis* of the Vedic period in India was prepared but at that time, there was little evidence to support this statement, Later, Qazilvash, 1960 quoted by Mahdihasan (1963, p. 370, 373), was working on ephedra in the field on the commercial extraction of ephedrine in Peshawar and where, ephedra was locally known as *Soma*, this supported the view that ephedra is *Soma*, in India. The most interesting evidence was given by Mahdihasan (1963, p. 370, 373) and he was able to support this view that ephedra is *Soma* based on an evidence of a sculpture, lodged at Peshawar Museum, in Pakistan. In this sculpture, it is shown that a tribal is offering a bundle of a plant twigs to Lord Budha and a heap of the offered plants and twigs is lying on the floor (See Fig. 7). The plant in the sculpture was identified with its the morphological characters as the *Ephedra* sp. (Mahdihasan p. 370, 371). These two evidences were well enough to support that ephedra was *Soma* used in India. Further, in Peshawar region ephedra is found growing in wild condition and known as *Soma* or *Suma*.



**Fig. 7.** The devotees of Buddha offering *Ephedra* sp., to Lord Buddha, identified from the sculpture by Mahadihasan of Pakistan. A Gandhar sculpture from Peshawar Museum (Pakistan).

Earlier, Wasson (1968 and 1971) has mentioned that up to Hindukush and Afghanistan fly- agaric was available to the Indo Āryas but it is certain that they had not used because they had left its use about 1000 years ago and, it is difficult to believe that they had had used it again after such a long time gap. They had only used, Ephedra, in Afghanistan and India, and possibly also in Bactria, where they stayed for a short period and where Ephedra was plentifully available.

### 10. SUBSTITUTES & SURROGATES OF SOMA

According to Damania, (2001,2004,), the Vedic-Āryan began to use *Peganum harmala*, and *Tamarix sp.* in their first home Iran as *Soma* when *Ephedra sp.* was not available to them. Similarly, after reaching the Sindh plains in India, where ephedra was not available, they used plants like; *Sarcostemma sp.* *Periploca aphylla*, etc. in different periods of time and in different parts of the country. Sharma (1969, p. 384), after describing the qualities of *Soma* in Vedic literature also states about its substitutes and surrogates. He states, in case, when *Soma* (ephedra) was not available it is mentioned in *Śatapatha Brāhmaṇa*,



**Fig. 8.** A twig of ephedra plant collected from Malari (Uttarakhand) by the author in 1982.

to use *Adar* herb and *Tāttiriya Brāhmaṇa* suggest to use *Putica* herb. If *Putica* is not available then to use *Arjuna* (*Terminalia arjuna* W&A). However, Bowman 1970 quoted by Merlin (2013, p.10) stated that in India Brāhmīns now use the stalks of *S. brevistigma* under the name ‘*Pitica*’ or ‘*Putica*’ as *Soma*. Possibly, the plant was used as a surrogate of *Soma* in religious worship among the Hindus. However, there is no botanical identification available for *Adar*.

### 11. CLASSIFICATION OF THE PLANTS USED AS SUBSTITUTE OR SURROGATES OF SOMA

The plants so far reported to be used as a substitute and as surrogates of *Soma*, in India can be classified as (i) psychoactive or hallucinogenic or are strong stimulants; (ii) the plants from which alcoholic drink was prepared by fermentation and (iii) None of these.

#### 11.1. The Psychoactive or Hallucinogenic Plants

##### 11.1.1 *Peganum harmala* Linn.

Commonly known as Syrian rue or Harmal. (O’Falttery & Schwartz 1989) quoted by Damania (2004, p.136,139) and Nene & Putoo (2004) and Merlin(2013, p.10) have expressed the views that possibly, *Peganum harmala* L. (*Zygophyllaceae*), a candidate for *Soma* in the Iranian homeland due to its hallucinogenic effect. However, b-carboline or harmine, present in the seeds and root, stimulates the brain and induces visual hallucination. It is also known as telepathene for reason of its peculiar ability of contemplation in which the eyes are closed a slight feeling of euphoria is felt. Harmaline was also known as the truth- serum, used by the Germans during Second World War. When, Forte, (1997) asked Wasson about the David Flattery theory of *Peganum harmala* to be the *Soma*. In reply Wasson replied, “Oh that is absurd, just absurd. That plant does not lead to a blissful state (Forte, 1997, p. 75) .”

The plant has also been described by Honinberger (1852, p. 282) from British India under the name of *Harmala ruta*, and it is stated that the plant is quite common in Lahore like a weed. The seeds are used to fumigate a room with wounded person and for eye-sight weakness and for retention of urine and in spinal pain. But, he did not mention any connection as *Soma* plant.

### 11.1.2 *Nymphaea* Sp. / *Nelumbo speciosum* (Lotus)

Recently, Spess, (2000), proposed that the *Soma* is the *Nymphaea* and *Nelumbo*, water lilies and the lotus plants. According to him, “the *Nelumbo* and *Nymphaea* both have a number of alkaloids and glycosidal compounds with psychoactive properties. These compounds responsible are found in the flowers, sap, nectar, stems, rhizomes, and possibly in the leaves. The flowers of certain *Nymphaea* species have been shown to induce ecstasy states similar to those of the drug, 3, 4-methylene-dioxymethamphetamine (MDMA), popularly known as “ecstasy”. He further states, “India has the largest variety of water lily and lotus plants in the world, and that some of these were known as *Soma* and called so in Sanskrit texts and stated to be used as *Soma* due to their psychoactivity.”

It is to mention here that *Nelumbium* with 16 synonyms in Sanskrit (Shastri, 2001, p. 137) and *Nymphaea* with 27 (Shastri, 2001, p. 139) and both are known as *Kamal* in India. But no name as *Soma* has been used for it. However, in *R̥gveda*, one hymn (IX.69.5) is on *Nymphaea* and it is also called as ‘*Amṛta*’ or (*ambrosia*) and this name has been given to a number of plants.

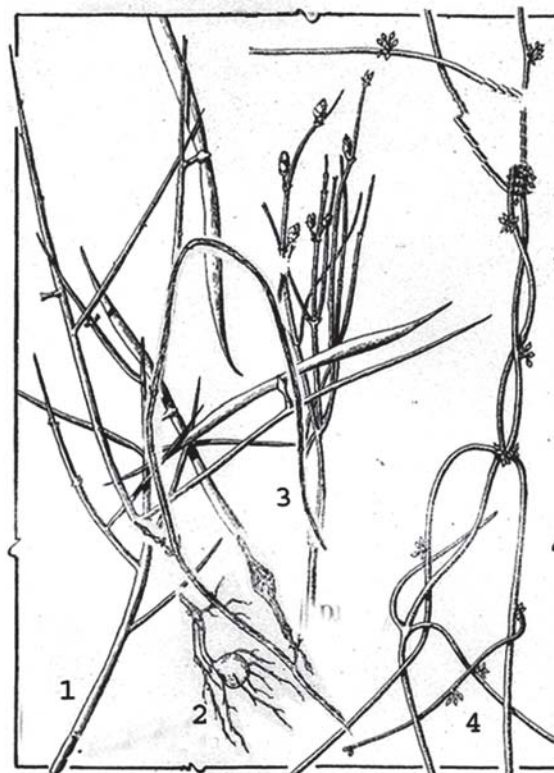
According to Sithole (1976, p. 23) the Lotus has long been regarded as a sacred flower of India. Probably, its earlier representation is found at Mohanjo-daro (Harrapan culture ) 2500-1500 BC. Later, it was represented in Bharut and Sanchi. It has provided the motif or the most varied designs in borders medallions, decorative panels and in *Tantrik* designs as a tree of life and fortune.

Recently, it has been depicted as an architectural feature in Bahai temple in Delhi and it is also a national flower of India. It is well mentioned in the Hindu and Buddhist mythology and also associated with Lord Vishnu. But, it would be very hard to recognize and accept *Nelumbium* and *Nymphaea* as *Soma*.

### 11.2 The Substitutes or surrogates, which yield alcohol on fermentation

#### 11.2.1 *Sarcostemma* spp.

Roxburgh (1820-24) also mentioned in his book *Flora Indica* that *Asclepias acida* (*Sarcostemma brevistigma*) was used after fermentation in many parts of the peninsula India as *Soma*. After that a number of scholars had reported the use of *Sarcostemma viminalis* (L.) R.Br and *S. brevistigma* W & A as *Soma*.



**Plate 1.** The surrogates and substitutes of ‘*Soma*’ used in post-Vedic period in India. Now their use is also lost along with the history of *Soma* 1. *Periploca aphylla* 2. *Ceropegia juncea* 3. *Ephedra* sp. (used as substitute) and 4. *Sarcostemma brevistigma*

### 11.2.2 *Madhuca indica* as *Soma* in Tamil literature

In South India, the flowers of *Illuppai*, *Mahua*, *Madhuca indica*, has been identified as *Soma* (Subramaniam, 1997, p. 15). According to Subramaniam (1997, p. 16), the fruits when pressed to squeeze juice the colour of the juice is described as brown *Babhru* ruddy, *aruṇa*, etc. It a long pedicel called *amsu*, and actually, he has given the same Ṛgvedic description as given by Wasson (1968) of *Amanita muscaria*. The preparation of drink from the fruits after fermentation have been described in detail.

### 11.2.3 *Ceropegia* sp. (*Asclepiadaceae*)

Usmanali & Narayanswami (1970, p. 108) reported *Ceropegia juncea* being used as *Soma* by the Ayurvedist in Kerala it is the only botanical species, which has latex, tubers and also distributed in Kerala and also in the Himalayas to fit in with *Soma* of the characters described in later publications, such as *Suśūrta Saṃhitā*.

### 11.3 The substitutes which are neither psychoactive nor yield alcohol on fermentation

#### 11.3.1 *Ruta graveolens*

When, the hunt of *Soma* began the first botanist, Willian Roxburgh was in Bengal and he identified the *Soma* plant as *Ruta graveolens* in Hortus Bengalensis (Roxburgh 1814) however, no reasons were given, possibly, it was identified due to its vernacular names, *Soma* or '*Somlatā* or the Parsis using it as *Soma* is not known.' Furthermore, the plant causes dermatitis. It contains rutin, which restores capillary frigidity (Chopra *et al.*, 1956). It is used in Unani system of medicine in fever, rheumatism, and its essential oil is known as 'Hookworm oil'. It is already been stated that it was used by the Parsis as '*Homa*' in Iran (Nene & Putoo, 2004).

## 12. PRESENT STATUS OF *SOMA* IN INDIAN RELIGION & CULTURE

Although, *Soma* being an important ancient, religious and sacred plant worshipped as

a deity, since times immemorial. Presently, it is only mentioned in the hand books of daily or routine worship, used during the religious rites and ceremonies, in each and every house of the Hindus by the Brāhmins or priests right from Kashmir to Kanya Kumari. This handbook is known by different names in different parts of the country. It includes the hymns or *mantras* from *Rgveda* (VII.35.1-13). These hymns are in form of a prayer and in these hymns, the deities are remembered, including *Soma* as a deity and prayed and requested to bestow peace, wealth, happiness, protection to the family of the person, who performs the worship or '*pūjā*'. The hymns are;

शंनोः सोमो भवतु ब्रह्म शंनः शंनो ग्रावाणः शमु सन्तु यज्ञाः ।

शंनः स्वरूपां मितयो भवन्तु शंनः प्रस्व शम्बस्तु वेदिः ॥  
(ऋ.वे.मं. 7 अ. 35 सू. 7)

शंनो अजएकपाद देवो अस्तु शं नोऽहिर्बुध्न्यः शं समुद्रः ।  
शंनोः अपां नपात पेरुरस्तु शंनः पृश्निर्भवतु देवगोपा  
(ऋ.वे.मं. 7 अ. 35 सू. 13)

*Soma* as a God is also remembered in a hymn used in *tarpaṇ* during *Vārcik śrāddhas* or *śrāddha ceremony*, when, every Hindu worships his deceased parents and for fathers. *Soma latā*, as a plant in practice, is reported to be used in '*Soma yajña*' (Sharma, 1998, p. 22). What is botanically *somlatā* is not given. However, in the last '*Soma yajña*, which was performed in a big way, about 15-16 yrs ago in the Shanti Kunja, Haridwar and for this the plant, used was *Ephedra* sp, and it was imported from Pakistan.(This was actually read by the author in a News paper).

## 13. DISCUSSION & CONCLUSION

By about 3700 BC the Vedic Āryas possibly used the fly-agaric, a mushroom, *Amanita muscaria* to prepare *Soma* drink. And, when it became rare in nature and was only available at far off distances and on mountains, the Falcons (*Śyena*) birds were used to collect and bring it to their masters. The collection of *Soma* by the

Falcons is very well recorded in the Ṛgvedic hymns. Perhaps, Wasson did not give any importance to this fact, which actually well supports his findings that *Soma* as the plant like fly-agaric, which is small red and colourful and quite distinguishable and could easily be lifted and brought by the Falcons.

By about 2500-2000 BC, they used ephedra, cannabis and poppy together as *Soma*.

When they were in the mountainous region they had to use only *ephedra*, as *Soma*, which was plentifully available but cannabis and poppy were not available, and, they had completely forgotten even the use of *Amanita muscaria* as *Soma*.

In India when they had spread eastwards and southwards in the plains, ephedra was not available so they had to use other plants as substitute and surrogates like: *Sarcostemma brevifolia* and other *Sarcostemma* sp., *Periploca aphylla*, and *Ceropegia* sp. etc. on the availability of plants, in different regions, of the country but not as '*Soma*'.

The history of *Soma* plant is perhaps the history of the movement of Vedic Āryas at different periods and places and of plants used according to region and their availability. However, the reasons for their movement, are still to be explored.

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