

Vedic Indians were Aware of the Microbial Biodiversity, Demanding 'Kannva' as the Father of Microbiology

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ABSTRACT The knowledge of microbial biodiversity presented by Sage Scientist Kannva can be traced out in the Atharva Veda. *Agni Hotra* (Fire worship) is an effective technology to overcome the negative effect of micro-organisms. Antony Van Leeuwenhoek was the first scientist who has observed the microscopic world of living organisms with the help of the instrument developed by himself. It is claimed that, no one had ever seen the microbes before Leeuwenhoek. This work was published by the Royal Society of London in the year 1677.

INTRODUCTION

If we look to the Atharva Veda (AV) (thousands of years B.C.), we come across three chapters where the description of the microbial world is available (Acharya and Sharma 1999). Those are 'Krumijamvana' (*Mandala 2 Suukta 31*), 'Kruminaasana' (2.32) and 'Krumighanna' (5.23). The word *Krumi* points to the microbes and *Jamvana* / *Naasana* / *Ghanna* means their death, spoilage or end. The name of the Sage scientist who had authored these hymns is 'Kannva'. His elaborations regarding the microbes is as follows:

- The microbes are of different structures and colour with strong digesting/ decaying capacity (violent stomach) (AV-5.23.4, 5,9).
- They move in the eyes, nose and in between the teeth. We want to spoil them (AV-5.23.3).
- The microbes move fast (cause quick infection), give maximum pain (to the body), create tremor and are very powerful. Either visible or invisible they should be destroyed (AV-5.23.7).
- Microbes seen or not seen to the naked eye, migrate on the soil, reside in (our bed), move quickly (cause infection) here and there, some are mobile or immobile, stay inside (our)intestine, head or bone of the chest and creep on the soil in different tracks (diversified infections). We (want to) kill them with the application of 'Baacha' (*Acorus calamus*) (AV-2.31.2,3,4).
- The microbes are spread-up everywhere (forest, mountain), reside inside the (various) animals (the disease carries) and enter in-

side our body should be spoiled from the point of their origin (AV-2.31.5)

- With the application of medicine (by us) the family, residence and Kingdom of the microbes along with their seeds (origin) are to be spoiled (AV-2.32.4,5).
- We are determined to spoil the pain causing entrance point (horn that pricks to give pain) and poisonous effects (*Visadhanah*) of the microbes (AV-2.32.6).
- The solar light (*Surya Aaloka*) spoils all sorts of microbes (AV-5.23.6).
- The (light of) rising and setting sun (with U.V. rays) is capable of destroying all types of microbes (*Kitanu* - that cause diseases) (AV-2.32.2).

Interestingly, the author Kannva has referred the name of three other sages who were proficient in this line of research. They were Atri, Yamadagnni and Agasti (AV-2.32.3). This shows a team work against microbial infection.

OBSERVATIONS AND DISCUSSION

The Personality of Kannva

The discovery of microbes and the process of their eradication developed by Kannva are highlighted by other sages in Atharva Veda. Sage Vhagali has recognized Kannva as follows (AV-6.52.3):

"We have got the medicines for long life and eradication of diseases that are discovered and ascertained by Kannva. Let these medicines spoil the invisible germs and make us free from diseases in full form".

Similarly, Sage Baadarayani has praised Kannva and his associates as prime users of medicine 'Ajasrunji' - *Gymnema sylvestre* / *Pergularia daemia* both of family Asclepiadaceae against the disease causing microbes (AV-4.37,1).

Sage Chatana has presented a medicine named 'Prushnee - Parnee' (AV-2.25). *Prushnee* means the Earth (*Pruthivi*) and *Parnee* means leaves of plant system. In this context *Prushnee-Parnee* means the plant diversity of the world that carry the various medicinal property. Otherwise the latter may be a single specific plant (medicine) to kill the cause of the diseases, that is, the harmful microbes (Acharya and Sharma 1999) identified as *Hemionitis cordifolia* / *Urarialagopodioides* (Williams 1899).

Chatana has praised the medicinal plant as follows (AV-2.25.3):

Oh Prushnee - Parnee ! You spoil the diseases that arrests the overall growth of the body.

Oh Prushnee - Parnee ! You spoil and eradicate the cause of the diseases *Kannva* that sucks our blood (*Rakta Paana*) and damages our internal body vital parts (*Garva Vhakshna*).

In the above narration, Chatana has used the name 'Kannva' for the disease causing organisms. This shows that, the micro-organisms are named 'Kannva' after the Vedic age microbiologist Kannva, as a token of remembrance and recognition. Moreover, in Sanskrit - Kannva name is derived from the root 'Kanna' with a literary meaning the smallest possible division / particle / a grain / a drop / the *Anu* and the latest is translated into English as Atom (Williams 1899). Significantly the microscopic structure of the organisms resembles with the literary meaning of word *Kanna*. More to add here, in the prelude of the epic 'Kaannva Samhita' (by Kannva) of 'Sukla Yojur Veda', it is directly presented that, *Kannvaa Rooga Utpadakaaha Krumayah* : *Kannva* (s) are disease causing micro-organisms (Bacteria).

We come across another Sage Scientist Kanaada who was the founder of 'Vaisesika' philosophy (Padhy 2006), which teaches the study of characteristics that distinguish a particular thing from all other things. Kanaada, with his real name as Kaasyapa was also called Kanabhuj or Kanabhaksa. His popular name Kanaada is so, because he resolved reality to its smallest possible division, which is called *Anu* (Atom) (Bernard 1989). Actually, the name Kan-

nva and Kanaada are of same personality; the former as a microbiologist and the latter as the proposer of atomic theory.

The Bhagavad Gita, narrated 5115 years ago, focused on the microbial world as *Suuksmatvaat-tadavijneyam*. Because of subtlety microbes are called *Suukhma* and are incomprehensible - *Avijnneyam* (Padhy 2014). Before the invention of microscope, modern science had little knowledge about the microbial biodiversity which is very clearly presented in Veda and Gita. All the above discussions in Veda and Gita proves that, *the science of microbiology is of Indian origin thousands of years ago*.

Agni Hotra (Fire Worship)

With the change of season, the environment changes and accordingly variations are adopted in the origin, development and destruction of the microbial biodiversity. This is the reason, food habits and living style is adjusted accordingly. One can mark the prevalence of different diseases in different seasons as given in Table 1.

Table 1: The occurrence of different diseases in different seasons

Season	Disease occur
Rainy	Indigestion, Cholera, Rheumatism, Typhoid, Malaria, Pneumonia, Itches, Scabies
Autumn and Winter	Bile fever and other problems based on excess of bile secretion
Dewy	Cold, Cough and Headache
Spring	Measles, Chicken pox, Small Pox
Summer	Constipation, Sun Stroke, Burning of body parts, Heart problems

Sage Kannva was the discoverer and implementer of *Agni Hotra Kriya* (Fire worship technology), that is performed at the juncture of the seasons to purify the environment and prevent the growth and development of disease causing micro-organisms and their carriers. This technique is also known as *Vaesaja Agni Hotra* (medicinal fire worship) well accepted in Aayurveda (Tripathy 1953). In this process, specific herbal drug combination for the disease concerned, mixed with equal part of the following plant material / products (Table 2) along with sugar cane product (*Khanda*) and Ghee are used for the *Havan* (burring of sacred fire).

Table 2: Specific ten plants used in *Havan* for all diseases, in addition to other medicinal herbs

1.	<i>Aquilaria agallocha</i> (Agura)
2.	<i>Tabernaemontana coronaria</i> (Tagara)
3.	<i>Polyalthia longifolia</i> (Devadaru)
4.	<i>Santalum album</i> (Chandana)
5.	<i>Pterocarpus marsupium</i> (Rakta chandana)
6.	<i>Commiphora candata</i> (Guggul)
7.	<i>Myristica aromaticum</i> (Jaiphala)
8.	<i>Syzygium aromaticum</i> (Labanga)
9.	<i>Swertia chirayita</i> (Chirayita)
10.	<i>Withania somnifera</i> (Aswagantha)

Ayurveda claims that about twenty-two types of diseases are effectively controlled by *Agni Hotra* with curative and preventive power. For this, seventeen herbal combinations are prescribed for *Havan*, which should be mixed with the above said (Table 2) ten plants. The patient should take active part and get exposed in the *Havan Kriya* for curative effect.

In 'Kaasyapa Samhita' the description of eighteen types of *Dhupa* treatment (exposure to smoke) are available. In this treatment a specific set of medicinal herbs are thrown to the fire and the patient is exposed to the smoke released. The smoke also eradicates the insets responsi-

ble for the spreading of disease causing micro-organisms from the environment.

Antony Van Leeuwenhoek is honoured as the prime observer of micro-organisms. But, the discovery of Sage Scientist Kannva remained locked within the Sanskrit *śloka*s of Vedic texts. It is left to the readers, to evaluate the honorary position of Kannva as the father of Microbiology in the vast field of Microbial research since the Vedic period.

REFERENCES

- Acharya SS, Sharma BD 1999. *Atharva Veda Samhita (Odia)*. Bhubaneswar: Yagashakti Gayatree, Bhoi Nagar.
- Bernard T 1989. *Hindu Philosophy*. Bombay: Jaico Publishing House.
- Padhy SN 2006. Ethno-biological analysis from myth to science, V: Thought vibration - A human environmental factor. *J Hum Ecol*, 20(2): 139-145.
- Padhy SN 2014. Ethno-ecological introspection into *Bhagawatgeeta*. 3: Conservation and ramification of biodiversity. *J Hum Ecol*, 45(1): 41-48.
- Tripathy BB 1953. *Drabyaguna Kalpadruma (Odia)*. 3rd Edition. Bellaguntha (Odisha): Op Tripathy Publishers.
- Williams MM 1899. *A Sanskrit English Dictionary*. Delhi: Motilal Banarsidass Publishers.

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