

**A REVIEW ARTICLE ON CONCEPT OF BEEJ, BEEJBHAG, BEEJBHAG AVAYAVA**Shipra Girdhar¹, Rajesh Kumar Sharma², Dinesh Chandra Sharma³¹M.D. Scholar (Dpt. Of *Kriya Sharir*), DSRRAU Jodhpur, India²Professor & HOD (P.G. Dpt. Of *Kriya Sharir*), DSRRAU Jodhpur, India³Associate Prof. (P.G. Dpt. Of *Kriya Sharir*), DSRRAU Jodhpur, IndiaCorresponding Author: girdharshipra92@gmail.com<https://doi.org/10.46607/iamj3810072022>

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**ABSTRACT**

The science of Genetics in Ayurveda may appear a new topic but ancient Ayurvedic scholars like *Charaka* and *Sushruta* understood very well the principles of heredity and the nature of traits or characters. The concept of genetics was in existence since the time of ancient *Acharyas*. The genetic entities such as chromosomes, genes, nucleotide sequence are referred to in our *samhitas* in different terminologies. In ancient time the *Beej* (Sperm& ova), *Beej Bhag* (Chromosomes) *Beej Bhagavayav* (genes) was an indication of hereditary. *Beeja* (ova/spermatozoa), *Beejabhaga* (chromosomes) and *Beejbhagavayava* (genes) are important terms described by ayurveda to explain defects in sperm and ovum. The *beeja*, *Beejabhaga*, and *Beejbhagavayava*, if get vitiated then are considered responsible for hereditary /Congenital diseases. The proposed Article aims to compare the references in the ancient *Ayurvedic* texts to their possible comparative correlations to modern Genetics.

Keywords: *Beej*, *Beejabhaga*, *Beejbhagavayava*, *Shadbhava Samudaya*, Genetics**INTRODUCTION**

In our classical texts, genetics is best described by *Acharya Susruta* and *Acharya Charaka* in *Sharira Sthana*. *Ayurveda* identified three genetic units in the

form of *Beej* (Germinal cell), *Beejabhaga* (Chromosome), and *Beejbhagavayava* (Gene) *Acarya Carak* described first the component of *Beej* whether male

or female and designated them as *Beejabhaga* and *Beejbhagavayava* [1] The study of genes, heredity, and variation in living organisms which is strongly linked with the study of information systems is called as Genetics.[2]

The concepts of *Beej*, *Beejabhaga* *Beejbhagavayava*, and the result of its vitiation have been described here. [3]

1. Beej: The smallest unit of *Shukra* (Spermatozoa) & *Shonita* (Ova) which are responsible for conception are known as *beej*. Each cell of the body inherits from the fertilized ovum.

2. Beej Bhag: Chromosomes present in the nucleus of cells can be compared with *Beejabhaga*. Chromosomes are made up predominantly of a nucleic acid called DNA. All information is stored in the molecules of this substance.

3. Beejbhagavayava: Each chromosome bears on itself a very large number of structures called genes (*Beej Bhagavayav*) which guide the performance of particular cellular functions and in turn may lead to the development of particular features of a species or an individual.

If any of these gets *uptapt* (vitiated) that may result in defective organs or Progeny. [4]

Aim To study the concepts of *Beej*, *Beejabhaga*, and *Beejbhagavayava* from *Ayurvedic* Texts and compare them with probable correlation with modern Genetics. The aim of this study was to make a proper analysis of the concepts regarding *Ayurveda* and Modern

aspects related to *Beej*, *Beejabhaga*, and *Beejbhagavayava* from various angles based on references found in a wide array of literature from both *Ayurvedic* and Modern literature. A deep review was taken especially of the various commentaries (*Chakrapani*, *Dalhan*, etc).

Bija, Beejabhaga and Beejbhagavayava & its vikriti:[5]

Ayurveda considered three genetic units in the form of *Beeja* (Germinal cell), *Beejabhaga* (Chromosome), and *Beejbhagavayava* (Gene). *Acarya Charaka* speaks first about the component of *Beeja* whether of male or female and designated them as *Beejabhaga* and *Beejbhagavayava* Commenting on these terms, *Acarya Chakrapani* has clearly stated that the smallest unit founding in *Shukra* (Sperm) & *Shonita* (Ovum) can be considered as *Beeja* of male and female respectively, which may compare with the male and female gametes i.e., sperm and ovum. The *Beejabhaga* is the component lying inside the *Beeja* and holds the responsibility for the development of different body organs and tissues of the body and it may compare with the Chromosomes which are passed on as units from one generation to another generation one from each of the parents. *Beejbhagavayava* should be taken as the furthermore subtle stage of *Beejabhaga* carrying hereditary characters and it may compare with the gene which is the functional unit of heredity and mainly responsible for the expression of a particular trait in an individual.

Table 1: BEEJ

Ayurvedic Aspects		Modern Aspects	
<i>Beej</i>	Vitiated	Gametes	Vitiated
<i>Artav</i>	<i>Vandhya Jayanti</i> (Progeny is sterile)	Ova	Infertility in Female
<i>Shukra</i>	<i>Vandhya Jayanti</i> (Progeny is sterile)	Spermatozoa	Infertility in male

Table 2: BEEJBHAG

Ayurvedic Aspects		Modern Aspects	
<i>Beejabhaga</i>	Vitiated	chromosomes	Vitiated
<i>Stree</i>	<i>Putipraja</i>		Chromosomal Abnormalities 1. Numerical: Monosomy, Trisomy 2. Structural: Deletion, Inversion, Ring chromosomes, Isochromosomes, Translation.
<i>Purush</i>	<i>Putipraja</i>		

Table 3: BEEJBHAGAVAYAVA ^[6]

Ayurvedic Aspects		Modern Aspects	
Beejbhagavayava		Genes/chromosomes	Vitiated
Stree	Varta		Chromosomal Abnormalities: Turner's syndrome, Klinefelter syndrome Genes: 1. Autosomal inheritance a. Autosomal dominant b. Autosomal recessive 2. Sex-linked inheritance a. X – linked b. Y- linked 3. Pylogenic and Multifactorial inheritance
Purush	Trinputrika.		

In *Ayurveda* Acharya describes *manas guna* which determines human nature, also resembles the mother and father. Ayurveda Acharyas felt the importance of six procreative factors (*shadgarbhkarabhavas*) such as *Matrija*, *Pitrija*, *Aatmaja*, *Rasaja*, *Satmyaja*, and *Sattvaja*.^[7]

ROLE OF HERIDITY

Hereditary factors are known as *Shadbhava Samudaya*.

- 1) *Matrija* –Maternal factors
- 2) *Pitrija* –Paternal factors
- 3) *Atmaja* –*Atma* (Soul)
- 4) *Satmyaja*- (Wholesomeness)
- 5) *Rasaja*-(Nutritional factors)
- 6) *Sattvaja*- (Psych/Mind)

1)MATRIJA BHAVA (MATERNAL FACTORS):

The first and foremost contributor is a mother. Some of the tissues and organs or attributes of a *Garbha* predominantly come from the mother they are called *Matrija* (*Matru* = mother, *Ja* = emerging from) *Bhava* (features). The organs are skin, spleen, kidneys, bladder, rectum, stomach, *Pakyashaya*, upper & lower part of the anus, small intestine, large intestine, mesentery & omentum.^[8]

2)PITRIJA BHAVA (PATERNAL FACTORS):

The second contributor is a father. The traits that are inherited from a father called *Pitrija* (*Pitru*= father, *Ja*= emerging) *Bhava* (features) are - Hair, (*kesha*), mustache (*shmashru*), nails (*nakha*), Skin hair (*Loma*), axillaries, groin hair, teeth, blood vessels, ligament, tendon, semen

3)ATMAJA BHAVA (ATMA (SOUL)): The Third important factor is a *soul* (spirit) called *Chetana Dhatu* or *Atma*. The soul is present in all creatures of the universe. It passes from generation to generation according to their good & bad conduct of actions since birth & death. *Atmaja* (*Atma*=Soul, *Ja*-emerging from) *Bhava* are-life span, self-realization, mind, sense, to take things in& to excrete things out of the body, stimulation & substances of sense organs, characteristic shape, voice & complexion of individual, the desire of happiness & sorrow, liking & disliking, consciousness, courage, intellect, memory, egoism & efforts^[9].

4)SATMYABHAVA (WHOLESOMENESS): It is a factor that provides beneficial & healthy to the fetus. It might be placed (*desh*), race (*Jati*), caste, habitat, seasons(*ritu*), disease (*roga*), exercise, water, day time sleep, taste (*rasa*), constitution, etc^[10].

5)RASAJA BHAVA (NUTRITIONAL FACTORS): The digested, absorbed, and assimilated end product of the ingested food. The following bhavas (factors) are said to be influenced by *rasa*. So, they are called *rasaja bhava* (factor). They are - *Abhinirvritti* of *sharira* (origin of *sharira* (body)), *Abhivridhi* (growth), *Tripti* (satisfaction), *Pushti* (Nourishment), *Utsaha* (enthusiasm), *Sharira upachaya* (physical structure), *Sthiti* (Maintenance), *Bala* (strength), *Hani* (Decay).^[11]

6)SATTVAJA BHAVA (PSYCH/MIND): *Mana* defines the following characteristics called *Sattvaja Bhava* in an individual - Attachment, character, purity, aversion, awareness, memory, confusion, Sacri-

fice, jealousy, bravery, fear, rage, enthusiasm, fiery, rude or mild nature, profoundness, unsteadiness.^[12]

DISCUSSION

"Life comes only from life"- understanding this small sentence took a very long time and very deliberate study in modern science.^[13] But the concepts of *Ayurveda* genetic theory are beautifully described in various chapters of *Sharirsthana* of *Samhitas*. The concept of *Beeja*, *Beejabhaga*, and *Beejabhagavyav* is a highly evolved concept of genetics representing even the minutest entity of modern genetics.^[14] *Charak* states that anatomical anomalies are developed in those parts of the body whose part of the chromosome /gene is defective.^[15] This statement inspired Dr. Haragovinda Khurana to make further studies in genetics. Thus, one can claim that *Charak* was the founder of modern genetics as well as the science of genetics.^[16] The anomalies that are found because of *Dushti* or Vitiation of *Beeja*, *Beejabhaga*, and *Beejabhagavyav* closely resemble the conditions mentioned above in the tables. *Ayurveda* Scholars were very much aware of the six procreative factors (*Shadgarbhakarabhavas*) such as *Matrija* (maternal), *Pitrija* (paternal), *Atmaja* (Soul), *Rasaja* (Nutritional), *Satmyaja* (wholesomeness) and *Sattvaja* (Psych/Mind), the consortium of these procreative factors is a necessary thing for healthy offspring. Thus, it can be concluded that *Beeja*, *Beejabhaga*, and *Beejabhagavyav* can be compared with male/female gametes, chromosomes, and genes respectively and *Shadgarbhakarabhavas* are responsible for a healthy growing life.

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