

# Panspermia



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Panspermia theory came up in the 19th and early 20th century as an idea of the possibility of existence of bioorganic molecules, seeds, germs, and organisms in space and how they reached the earth. According to Arrhenius and Kelvin, panspermia divided into two branches, which are lithopanspermia, defined as transportation of germs in stones that travel in space and radiopanspermia, which is the transportation of pores through pressure that radiates from stellar light. There has been the recent discovery that microbes can survive under extreme weather conditions which has been a credit to panspermia hypothesis. There has been a laboratory test of cells falling to earth at rates of few tons in a day over the globe. The tests have proved positive by showing the existence of microorganisms in the cells, which are not far from the related species found on Earth. Bioastronomy is the new field used to evaluate the possibility of the theory existence after a decade.

Charles Darwin in the 18th century accepted the pluralism of life within the cosmos. That was what helped him in his attempt to explain the origin of the variety terrestrial forms of life.

After decades of scientific investigations and continued questioning about the extraterrestrial life, a research on the universe and questioning of the possibility of universal life has developed markedly under astronomy.

Panspermia theories established in the 19th century facilitated the evaluation space life, even though panspermia has no address to the first origin of life, but concentrates its argument on the continuation of life once an achievement of the origin comes.

There has been an expansion of microbial life limits in the Earth over the recent years with a wide variety of habitant. The habitants are found in the geothermal vents, in the ocean floor, in radioactive dumps and in Antarctic soil about eight kilometers beneath the Earth crust. Bacteria surviving for billions of years entangled in a crystal of salt are cases held with lots of weight in the field of astrobiology.

The term panspermia derives from Greek words: 'pan' means all and 'sperma' means seed. Panspermia is an umbrella term that defines every scientific theory that suggests that all life known in earth had its beginning in the outer space. It assumes that survival exists in another place in the universe and terms this life as a catalyst to its survival on earth.

Scientists have defined the theory from two perspectives: The comic ancestry- in its view argues that life never began, but it existed all through in every part of the universe. In its opinion, there is no transportation of life to earth that occurred, and life got no origin. The earth formation in the Big Bang wake gave rise to a new planet where living microbes formed and took residence in it. This process was what repeated in the whole universe and innumerable places. The second view is that the earth at one time had no life hence the life ingredients originated from somewhere else in space.

Panspermia theorists have all along been debating on how life of these living microbes came to earth from space. This debate has further categorized them into ; Undirected panspermia who have a long history in science argue that life ingredients came to earth through no form of intelligence, extraterrestrial or divine nature stating that the whole process was basically

random. Direct panspermia whose number is few have assumptions that non-terrestrial intelligence, it being divine or even extraterrestrial, aided as a catalyst to the life seeding.

According to the majority of the scientists, panspermia summarizes in the following ways.

a. Panspermia is about the extraterrestrial origin of essential building chunks of life that designates the start of the evolution process.

b. Panspermia is about the explanation of either how evolution was possible on earth or elsewhere.

c. To embrace panspermia, one has also to accept evolution. The theory deduces the evolution of seeded life from space but not mature life forms transportation through space, which is absurd.

d. If creation perception were as a divine deed that brought every form of matter to existence, then creation is compatible with panspermia being that it can show how life components formation and their distribution in the whole universe and on earth took place in order to bring forth life.

Although some scientists argue the facts of the existence of intelligent extraterrestrial life as true, the scientific community have no such evidence this far. Hence, discussions on panspermia concentrate on the theory based on random distribution, presence of microbial life and its path to earth from the universe. This existence of life depends on answers to questions like

1. Is there proof of existence of microbial life in space?

2. Is there proof that the life came to the earth from space?

3. Is there a surety that primitive life in earth out of which advanced forms of life are said to have evolved were not in the earth all along, and had never existed on space?

The scientists in defense for their theory give a response, as, on the issues of extraterrestrial life, scientists have been able to detect pre-biotic chemicals presumed present on the onset of evolution in comets, interstellar clouds, and meteorites. This gives them hope of that some raw chemical ingredients of life might have originated from space. These elements however do not meet the actual forms of microbial life.

The discovery of the meteorites in the earth from Mars has proved to be the most promising answer to interstellar travels. These meteorites were first in three places namely, Chassigny, France in 1815, Shergotty, India in 1865, and Nahkla, Egypt in 1911.

The tiny tardigrades survival renewed confidence in panspermia's theory. Tardigrades are speck-sized things with not more than 1.5 millimeters in length. They live on mosses and wet lichens and can wait for return of water once these environments dry out. They are able to resist cold, radiation, and heat. Tests in space that involved exposing them to solar radiations for ten days demonstrated the possibility of simple and tiny life forms surviving in space. This test on survival is of importance to panspermia theory. Recent imagery from 'Mars Global Surveyor' and 'Mars Odyssey' revealed a number of branched valleys forming tightly packed and joined drainage systems showing an abundance of water on Mars at a certain time and that

smaller melted amounts might still be on the surface of the planet. This is away from the consideration that the ultraviolet light presently attacking the place is an obstacle to the existence of organisms. This however, does not rule off the presence of life on Mars.

Scientists have discovered that life in the earth is by an assembly and maintenance by an information system which holds information contained within the living cell of every living organism. This information system is the DNA (Deoxyribonucleic Acid). Every living thing has a great amount of the information, contained in the DNA. The work of DNA is to preserve and to process information through highly complex function language. DNA contains the design needed in the construction of every part of all living organisms and the procedure of how to bring that design to life. DNA nucleotides arranged in a certain order along the DNA strands that form separate segments referred to as GENES. A gene is therefore, a specific segment of the DNA that contains the information to construct one specific protein for example, a gene to make hemoglobin, gene for myosin among other types of protein.

A DNA molecule has 23 pairs of chromosomes the mother contributing half and the other half by the father. In this DNA, all information necessary to build, grow, protect, and maintain thinking human is present. The DNA in this zygote assembles all raw materials within the cell and goes ahead to use them in the construction embryonic cells. It continues to differentiate cells further into lungs, eyes, kidney, stomach, and all the rest. After nine months, a baby is born who continues to grow up to a time when it is now a mature

adult. During the to adulthood, speech develops hearing, and walking among many others.

Astronomers argued that intelligence does not occur elsewhere in the galaxy. They argued that only a computerized robot would exist here. One way the theory used to disprove this is by the research of Frances Crick the co- discoverer of DNA structure. He suggested that there was an advanced civilization, which might have spread simple bacteria and other biological constituents all over the cosmos arguing that the coming of these materials on earth started the evolution chain, which led to a man.

To conclude, it is clear that science will not avail answers to fundamental questions concerning life mystery or even the universe mystery. This leaves us to base conclusions on incomplete evidence to answer these vital questions.