



THE STUDY
By Manikant Singh



Panagrolaimus Kolymaensis

Why in the news ?

- ◆ According to a report, researchers have made an unprecedented scientific discovery by reviving a roundworm that was frozen 46,000 years ago.

Cryptobiosis

- ◆ An unknown species of roundworm was found in dormant state 40 meters below the surface in Siberian permafrost. This condition is known as cryptobiosis.
- ◆ Cryptobiosis allows organisms to tolerate extreme temperatures or cold without water or oxygen.
- ◆ During cryptobiosis, an organism's metabolic rate is significantly reduced to an unknown level.
- ◆ The roundworms in this state are described as being "in a state between life and death."



210, Virat Bhawan, 2nd Floor Near Post Office, Dr. Mukherjee Nagar, Delhi-09

Contact Us 9999516388, 8595638669

How did scientists revive insects?

- ◆ The roundworm was revived by scientists from the Institute of Physical, Chemical, and Biological Problems in Soil Science in Russia.
- ◆ Before transporting about 100 insects to laboratories in Germany for analysis, the scientists first revived two insects at the institute. The revival process involved rehydrating the roundworms with water.

Panagrolaimus Kolymaensis

- ◆ Genetic analysis conducted by scientists in Dresden and Cologne revealed that the revived insects belonged to a new species, which the researchers named *Panagrolaimus Kolymaensis*.
- ◆ The researchers found that *P. Kolymaensis* shared a molecular toolkit with another organism called *C. elegans*.
- ◆ This molecular similarity may have played a role in enabling *P. Kolymaensis* to survive cryptobiosis.
- ◆ Both *P. Kolymaensis* and *C. elegans* produce a sugar called trehalose, which could have been a crucial factor in developing their ability to tolerate cold and dehydration.

Major Benefits for Conservationists

- ◆ Organisms in the cryptobiotic state have the ability to tolerate the complete absence of water or oxygen.



- ◆ The cryptobiotic state is a condition in which organisms are said to exist "between death and life," with a significantly reduced and unknown metabolic rate. Earlier, the organisms that were revived had been in a dormant state for decades, not millennia.
- ◆ The study of these organisms holds significance for conservation biology and efforts to protect other species.
- ◆ Scientists hope to gain insights from studying and analyzing these organisms, which can inform conservation efforts and help protect other species facing extreme environmental conditions, particularly in the era of climate change.

