



By Jayadevan P K

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Indo-Canadian team may have answer to energy crisis

BANGALORE: Scientists in India and Canada are proposing a novel resolution to the global energy crisis by extracting oil from the single-cell algae which, according to fossil evidence, originated during or before the early Jurassic period.

Indian Institute of Science (IISc) scientist, T V Ramachandra, Richard Gordon, Durga Madhab Mahapatra and Karthick Band, in a report to be published in the October edition of the American Chemical Society Journal -- Industrial & Engineering Chemistry Research, observe that most of the world's crude originated from the single-cell algae called diatoms which produce an oily substance in their body.

According to the report, barely one-third of a strand of hair in diameter, diatoms flourish in enormous numbers in oceans and other water sources. They die, drift to the sea floor, and deposit their shells and oil into the sediments. Estimates suggest that live diatoms could make 10-200 times as much oil per acre of cultivated area compared to oil seeds.

The scientists have proposed to harvest oil from diatoms, using biochemical engineering and also a new solar panel approach that utilises genetically modifiable aspects of diatom biology, offering the prospect of milking diatoms for sustainable energy by altering them to actively secrete oil products.

Dr T V Ramachandra, who is one of the research collaborators, told Express that further research is needed to study the technological part of milking diatoms for oil. The just announced work suggests that diatoms can triple the efficiency of electrical solar panels, an efficiency that should also apply to gasoline secreting solar panels.

Fossil finding

Diatoms are a major group of eukaryotic algae, and are one of the most common types of phytoplankton.

Most diatoms are unicellular, although they can exist as colonies in the shape of filaments or ribbons, fans, zigzags, or stellate colonies.

jayadevan@epmltd.com

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