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Indian experts find bacteria to beat global heat

16 Feb 2009, 0507 hrs IST, Rajiv Mani , TNN

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ALLAHABAD: In a major breakthrough that could help in the fight against [global warming](#), a team of five Indian scientists from four institutes of the country have discovered a naturally occurring bacteria which converts carbon dioxide (CO2) into a compound found in limestone and chalk.

When used as an enzyme — biomolecules that speed up a chemical reaction — the bacteria has been found to transform CO2 into [calcium carbonate](#) (CaCO3), which can fetch minerals of economic value, said Dr Anjana Sharma from the biosciences department of RD University, Jabalpur, who was part of the Rs 98.6 lakh project sponsored by the department of biotechnology (DBT) under the Union science and technology ministry.

CO2 is a [greenhouse gas](#) produced in the burning of fossil fuels and other industrial activities. The rising emissions of CO2 in the atmosphere is chiefly responsible for global warming. Reducing CO2 levels is the single most important strategy to fight global warming and the resulting effects of climate change.

"The enzyme can be put to work in any situation, like in a chamber fitted inside a factory chimney through which CO2 would pass before being emitted into the atmosphere, and it would convert the greenhouse gas into calcium carbonate," Dr Sadhana Rayalu, the project coordinator who is from the National Environmental Engineering and Research Institute (NEERI), Nagpur, told TOI on phone from Nagpur.

This potentially means that the bacteria — extracted from a number of places including brick kilns in Satna, Madhya Pradesh — can be used to take out CO2 from its sources of emission itself.

Rayalu said the chemical reactions involved in the process have been successfully established while its economic viability, [cloning](#), expression and single-step purification are under study. The team has published its findings in the Indian Journal of Microbiology and its paper has been accepted for publication in the World Journal of Microbiology and Biotechnology.

Sharma said the breakthrough was the result of marathon research work spanning more than three years. Other members of the team are Dr K Krishnamurty from NEERI, Dr T Satyanarayana from Delhi University and Dr A K Tripathi from Banaras Hindu University.

"Interestingly, it is nature that has come to the rescue of the human race from harmful effects of global warming. Investigators of the team have discovered as many as seven such micro-organisms that have the tendency to convert carbon dioxide into calcium carbonate at different natural locations," said Sharma, who was on a visit to Allahabad.

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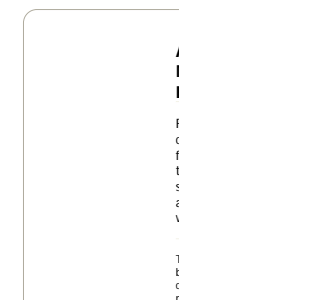
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