

Marine bacteria are cutting cooling gas emissions

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Marine bacteria are reducing the amount of an important climate cooling gas given off from our seas and studies on enzymes from a model bacterium could help to understand this important process, say scientists today (Wednesday 5 April 2006) at the Society for General Microbiology's 158th Meeting at the University of Warwick, UK.

“Dimethyl sulphide contributes to the characteristic smell of the sea. But it is also an important negative greenhouse gas, since in the atmosphere it promotes cloud formation which in turn reduces the amount of sunlight and heat reaching the earth's surface,” says Dr Hendrik Schäfer of the University of Warwick. “We therefore need to know more about how this gas is released by the oceans, and how much of a cooling effect this has on our climate”.

“It has long been known that certain bacteria living in seawater can break down most of the dimethyl sulphide produced in the sea before it can be released into the air to have its cooling effect,” says Dr Schäfer. “Almost all of this gas is produced in the sea. If we can improve our knowledge of the biological pathways and enzymes used by bacteria to break down the gas in the sea, we will have a better understanding of the important role played by our oceans and the life forms they contain in climate regulation”.

The scientists are currently studying which enzymes bacteria called Methylophaga use for dimethyl sulphide degradation. Complementing this work, the genome of one strain of Methylophaga will soon be

sequenced to help identify the genes underpinning this process. The discovery of novel genes and enzymes will lead to a better understanding of bacterial dimethyl sulphide degradation, an activity that prevents the emission of potentially much larger quantities of the climate cooling gas.

“We may find new enzymes from our genetic work that could also have commercial potential in biotechnology, for instance in biofilters to reduce nuisance smells from industrial operations,” says Dr Schäfer.

The Warwick team’s work, which is being prepared for journal publication, will be discussed for the first time in public amongst scientists at the Society for General Microbiology’s meeting.

Source: Society for General Microbiology

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