

Cloning the smell of the seaside

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Scientists from the University of East Anglia have discovered exactly what makes the seaside smell like the seaside – and bottled it! The age-old mystery was unlocked thanks to some novel bacteria plucked from the North Norfolk coast.

Prof Andrew Johnston and his team at UEA isolated this microbe from the mud at Stiffkey saltmarsh to identify and extract the single gene responsible for the emission of the strong-smelling gas, dimethyl sulphide (DMS).

"On bracing childhood visits to the seaside we were always told to 'breathe in that ozone, it's good for you'," said Prof Johnston.

"But we were misled, twice over. Firstly because that distinctive smell is not ozone, it is dimethyl sulphide. And secondly, because inhaling it is not necessarily good for you."

DMS is a little known but important gas. Across the world's oceans, seas and coasts, tens of millions of tonnes of it are released by microbes that live near plankton and marine plants, including seaweeds and some salt-marsh plants. The gas plays an important role in the formation of cloud cover over the oceans, with major effects on climate. Indeed, the phenomenon was used by James Lovelock as a plank to underpin his 'Gaia hypothesis'.

DMS is also a remarkably effective food marker for ocean-going birds such as shearwaters and petrels. It acts as a homing scent – like Brussels

sprouts at the Christmas dinner table! - and the birds sniff out their plankton food in the lonely oceans at astonishingly low concentrations.

Scientists have known about DMS for many years but the genes responsible for its production have never before been identified. The new findings will be published in the journal Science on Friday February 2.

"By isolating a single gene from a bacterium collected from the mud of Stiffkey marshes, we deduced that the mechanisms involved in DMS production differ markedly from those that had been predicted," said Prof Johnston. "And we discovered that other, wholly unexpected bacteria could also make that seaside smell."

The discovery adds to the diverse list of Stiffkey's claims to fame. The small coastal village is renowned for its 'Stewkey Blue' cockles and was also the home of Henry Williamson, author of 'Tarka the Otter'.

A more controversial figure from Siffkey's past was its rector, Rev Harold Davidson, who was defrocked in 1932 after allegedly 'cavorting with' London prostitutes. He later joined a circus and died after being mauled to death by a lion in Skegness. The UEA scientists are hoping to avoid such a fate, said Prof Johnston!

Source: University of East Anglia

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