Bees help to beat MRSA bugs

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Bees could have a key role to play in urgently-needed new treatments to fight the virulent MRSA bug, according to research led at the University of Strathclyde in Glasgow, Scotland.

The scientists found that a substance known as beeglue or propolis, originating from beehives in the Pacific region, was active against MRSA, which causes potentially fatal infections, particularly in hospital patients.

The bug was either the underlying cause or a contributory factor in more than 1,900 deaths between 1996 and 2008.

The research, published in *Phytotherapy Research* journal, is an example of the pioneering work of the Strathclyde Institute of Pharmacy and Biomedical Sciences in developing new medicines for illnesses and conditions including infectious diseases, cancer, heart disease, and schizophrenia. An £8 million fundraising campaign is underway for the Institute's new £36 million building, to expand and enhance its innovative research and education in medicine discovery, development and use.

Dr Véronique Seidel, a Lecturer in Natural Products Chemistry at the Institute, led the research. She said: "MRSA can have a devastating impact on people who contract it and on their families, often compounding illnesses they already have.

"One of the few available drugs to treat MRSA infections is an antibiotic

called vancomycin. But new strains have been emerging which show limited susceptibility, or even resistance, to vancomycin.

"This means that there is a pressing need to discover and develop alternatives to current anti-MRSA drugs. We investigated propolis, as part of a programme aimed at discovering new antibiotics from natural sources, because bees use it as an antiseptic glue to seal gaps between honeycombs and preserve their hives from microbial contamination.

"Beeglue is also a natural remedy widely-used in folk medicine for a variety of ailments but little has been known until now about its capacity to target MRSA. Our results have been highly encouraging and we will be taking our research further to understand how active substances in propolis work and to seek the treatments which patients urgently require."

The Strathclyde researchers have been working in partnership with Nature's Laboratory in North Yorkshire, England, a world leader in propolis research and campaigner for deeper scientific understanding of natural medicines. They tested extracts of propolis on 15 MRSA strains obtained from the NHS and isolated two compounds, Propolin C and Propolin D, which showed good activity against all the MRSA strains tested.

The research is the first to report anti-MRSA activity in propolis originating from the Pacific region and the first to describe the anti-MRSA properties of Propolin C and Propolin D. These could possibly act as templates for the development of improved anti-MRSA agents.

More information: The research paper, Antimethicillin-Resistant Staphylococcus aureus (MRSA) Activity of 'Pacific Propolis' and Isolated Prenylflavanones, has been published in the Phytotherapy Research journal. It can be seen at (DOI:10.1002/ptr.3096)

Provided by University of Strathclyde