



THE UNIVERSITY *of* EDINBURGH

News Release

Issued: Wednesday 4 March 2015

Soil study helps unearth vital clues in infection treatments search

Fresh discoveries about what helps bacteria thrive could aid the quest for new drugs to fight infections.

Researchers have found that bugs' ability to prosper in the earth is more complex than previously thought.

A new study challenges an existing theory that bacteria can only thrive in their natural environment.

Instead, researchers say bacterial distribution is controlled by other factors, which may include nutrient and water content, numbers of predators and levels of competition between species.

Bacteria in soil produce potent biological agents for defence that kill fungi and other bugs. Scientists say these can be developed as antibiotic drugs.

How factors in soil interact dictates where bacteria are found and understanding them better could provide researchers with a clearer picture of how soil ecosystems function. This could help scientists increase yields from crop harvests and enable researchers to identify antimicrobial agents that could be developed as new antibiotics.

Researchers at the Universities of Edinburgh and Ottawa found that bacteria can also thrive in non-native environments. The team collected bacteria and soil samples from a forest in Western Quebec, Canada. They grew bacteria in soils from each of the sites sampled and found that they could prosper in a variety of different environmental conditions.

The study casts doubt on the belief that the survival of bacteria in soil is governed exclusively by the Baas Becking theory that states bacteria are able to survive only in their native environment.

The study, published in the journal *The American Naturalist*, was supported by the Natural Sciences and Engineering Research Council of Canada.

Dr Susanne Kraemer, of the University of Edinburgh's School of Biological Sciences, who led the study, said: "Soil often gets overlooked as an ecosystem, even though it is absolutely crucial for nutrient cycling, food and fibre production and the discovery of antibiotic compounds. It is surprising how little we know about the hundreds of thousands of bacteria which ensure the functioning of this ecosystem."

Ranked among the top universities in the world

For further information, please contact:
Corin Campbell, Press & PR Office, tel 0131 650 6382, email Corin.Campbell@ed.ac.uk

Ranked among the top universities in the world