Mānuka can influence pathogen survival in soil.

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Mānuka (Leptospermum scoparium), a member of the Myrtaceae family, is a pioneer species colonising disturbed environments in New Zealand and South Australia that is commonly used in land restoration projects. It has known antiseptic properties and its products (e.g. honey, oil and cosmetics) have a high economic value. Our research has previously demonstrated that the components responsible for the observed antimicrobial ability of these plants may make their way to the soil environment. Research found that total Escherichia coli (E. coli) applied to soil, declined faster under mānuka plants compared to controls. The current research aims to determine the potential to use the antiseptic properties of Myrtaceae plant species such as manuka to ameliorate environmental pathogen contamination from biowaste reuse and in agriculture.

Experiments were carried out to further investigate mānuka antimicrobial efficacy within soil and additionally observe any potential influence on pathogen movement through soil. Specifically, we sought to measure the survival of E. coli and Salmonella typhimurium (S. typhimurium) within two different soils underneath growing mānuka, and in leachate from the pots. Results showed that based on a simulated one off 'heavy rainfall event' significantly less E.coli leached from pots containing mānuka compared to controls (Ryegrass, no plant control), whilst die off (measured by decimal reduction times) of S. typhimurium in soil was also significantly enhanced by the presence of mānuka.

Overall results were promising for the use of mānuka in biowaste disposal and farming systems to control both the movement and survival of pathogens in soil. This is particularly relevant to the potential application of mānuka for riparian planting and around 'critical source areas' of pathogen contamination.