BAC-STOP
STOP BAD BACTERIA ON OAK

Using the odour of bacteria to tackle acute oak decline

Gareth Thomas

Protecting Crops and the Environment

Rothamsted Research

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The Scottish Government
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Agrilus biguttatus life cycle

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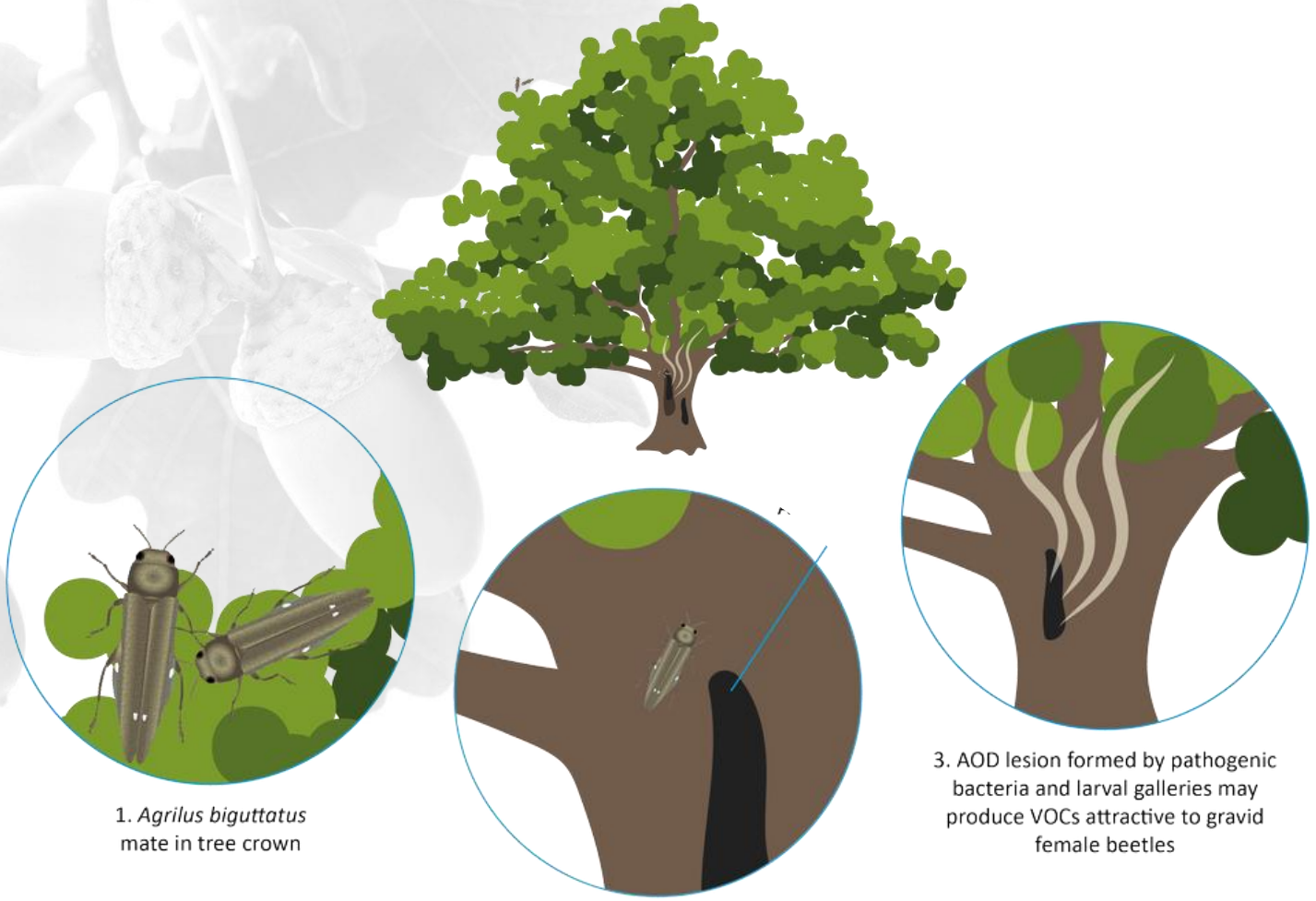

Objectives:

1) Determine the role of bacterial odours on *A. biguttatus* behaviour

2) Characterise odours produced by AOD bacteria

Overall project aim:

To identify bacterial odours attractive to the beetle, which could be used to optimise semiochemical-based lures to monitor the spread of *A. biguttatus*

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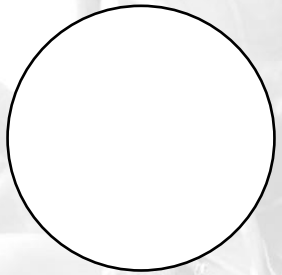
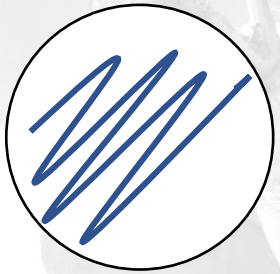
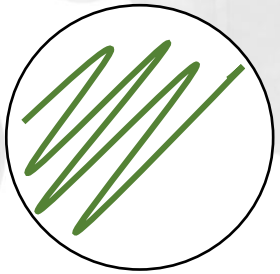


Uninoculated growth media

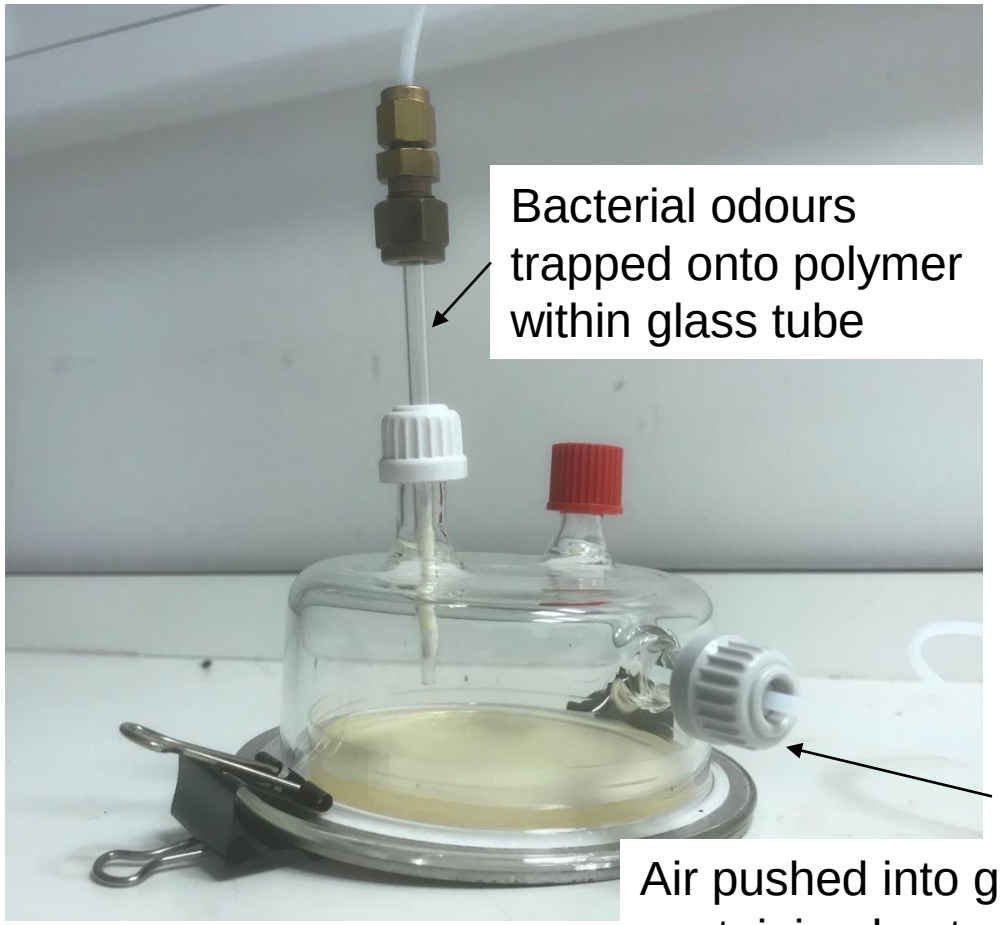


Brenneria goodwinii



Rahnella victoriana

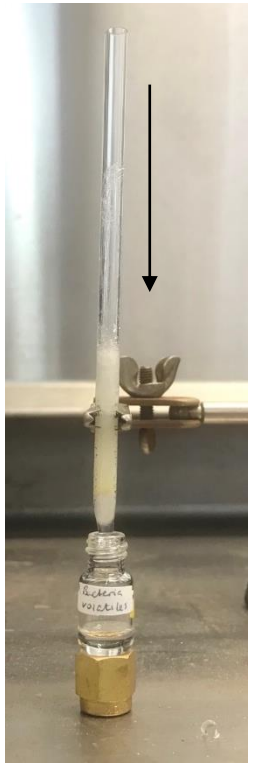
Gibbsiella quercinecans



Bacterial odours trapped onto polymer within glass tube

Air pushed into glass dome containing bacteria culture

Solvent passed through tube to elute odours into a liquid extract



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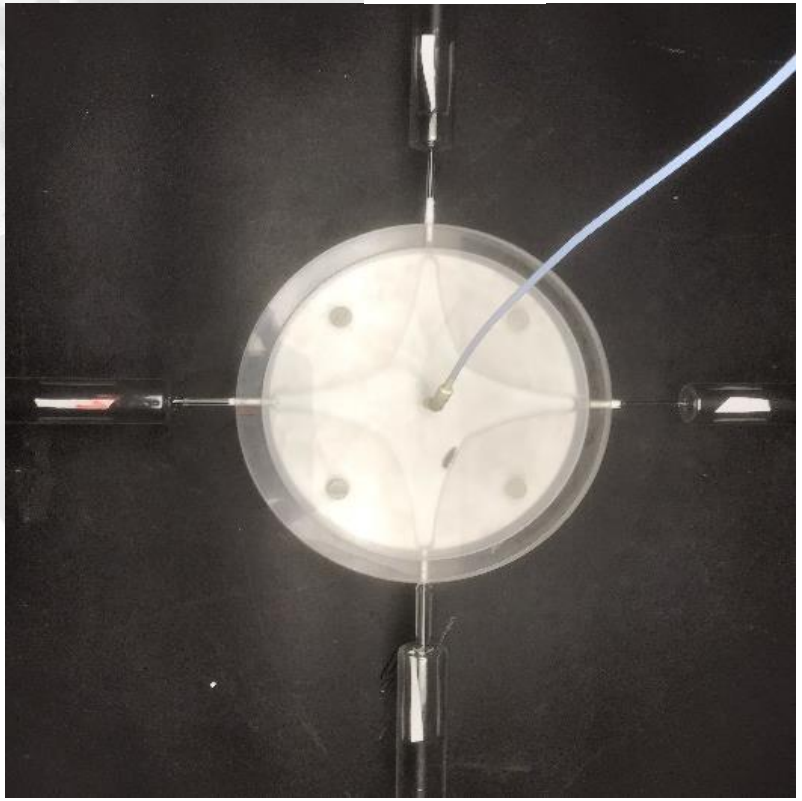
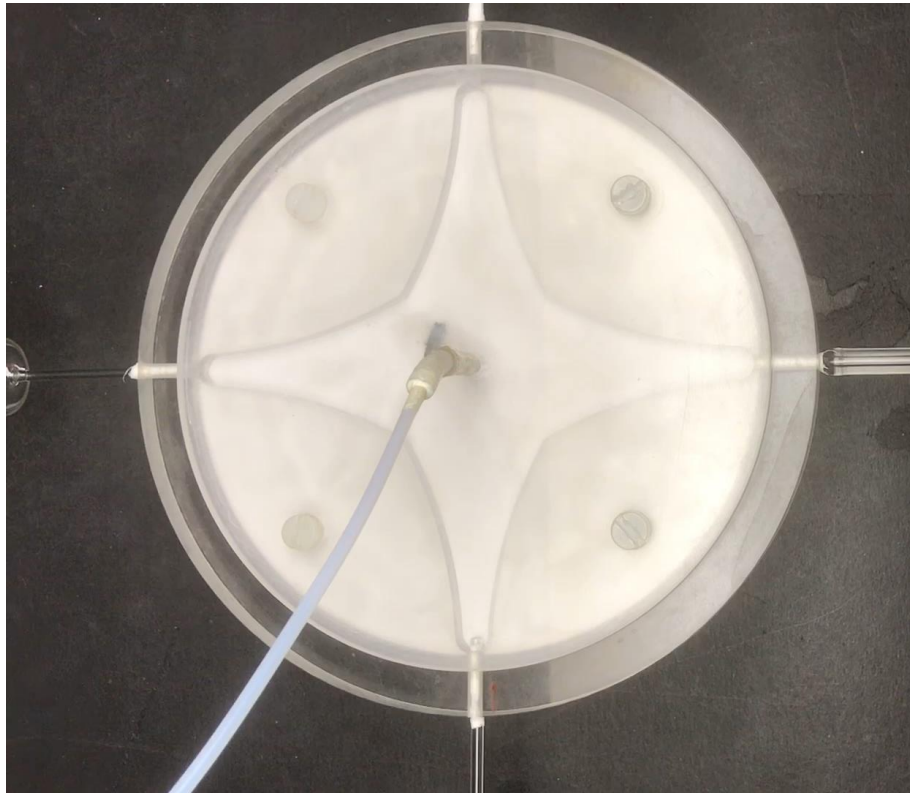
Solvent control

Solvent control



Solvent control

Bacteria odour source



Bacteria odour source

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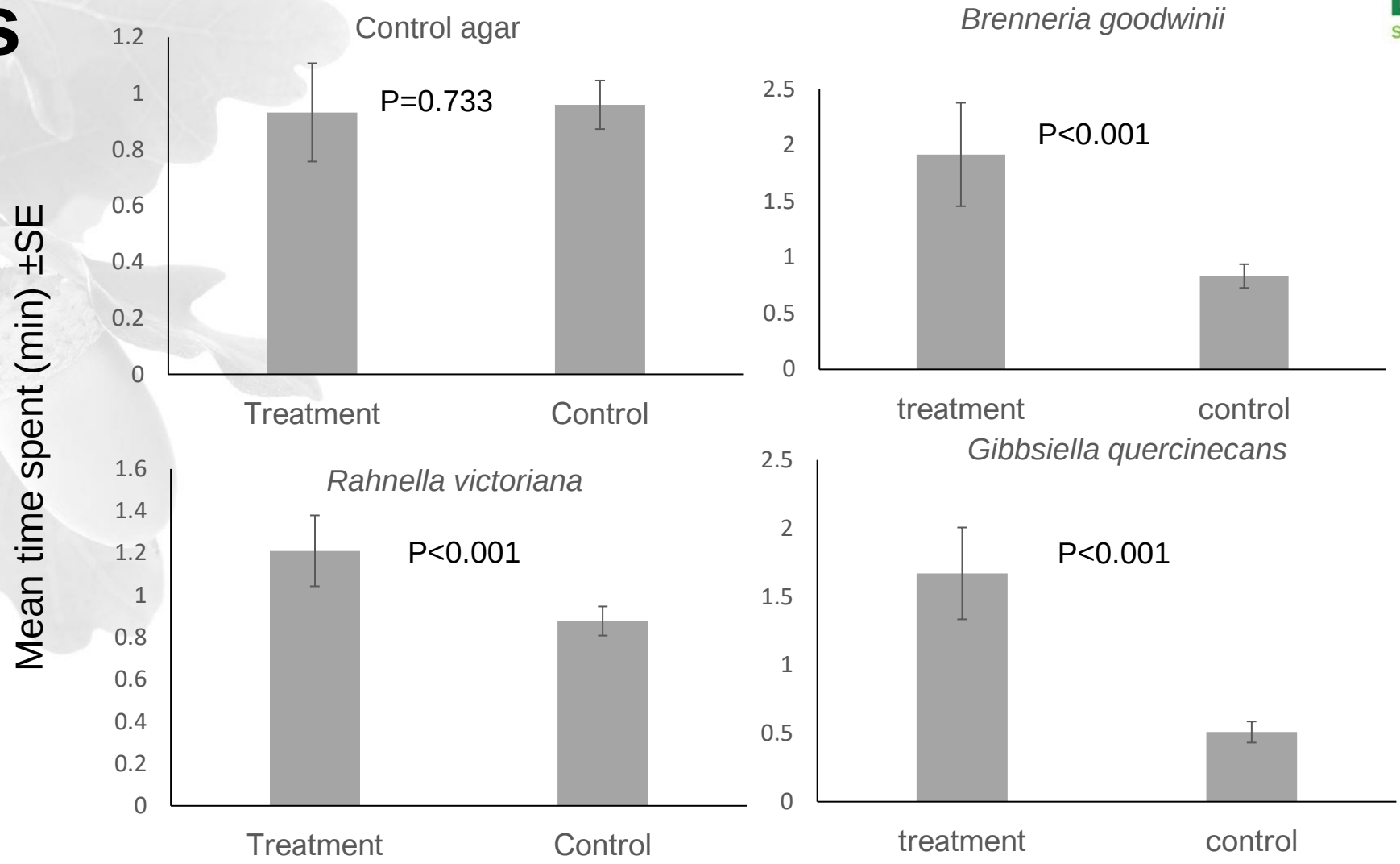
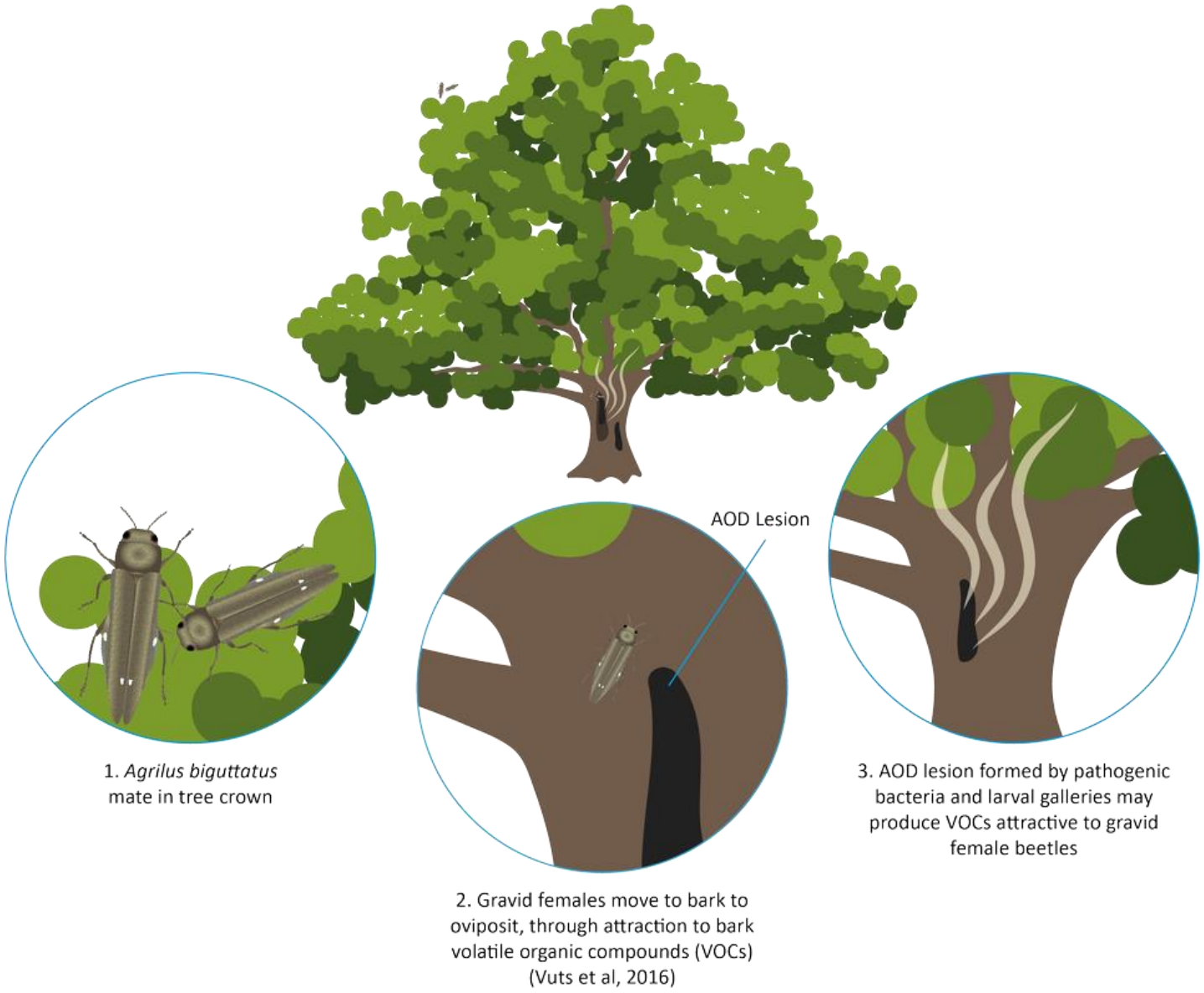
Beetles show preference for bacterial odours



Agrilus biguttatus life cycle



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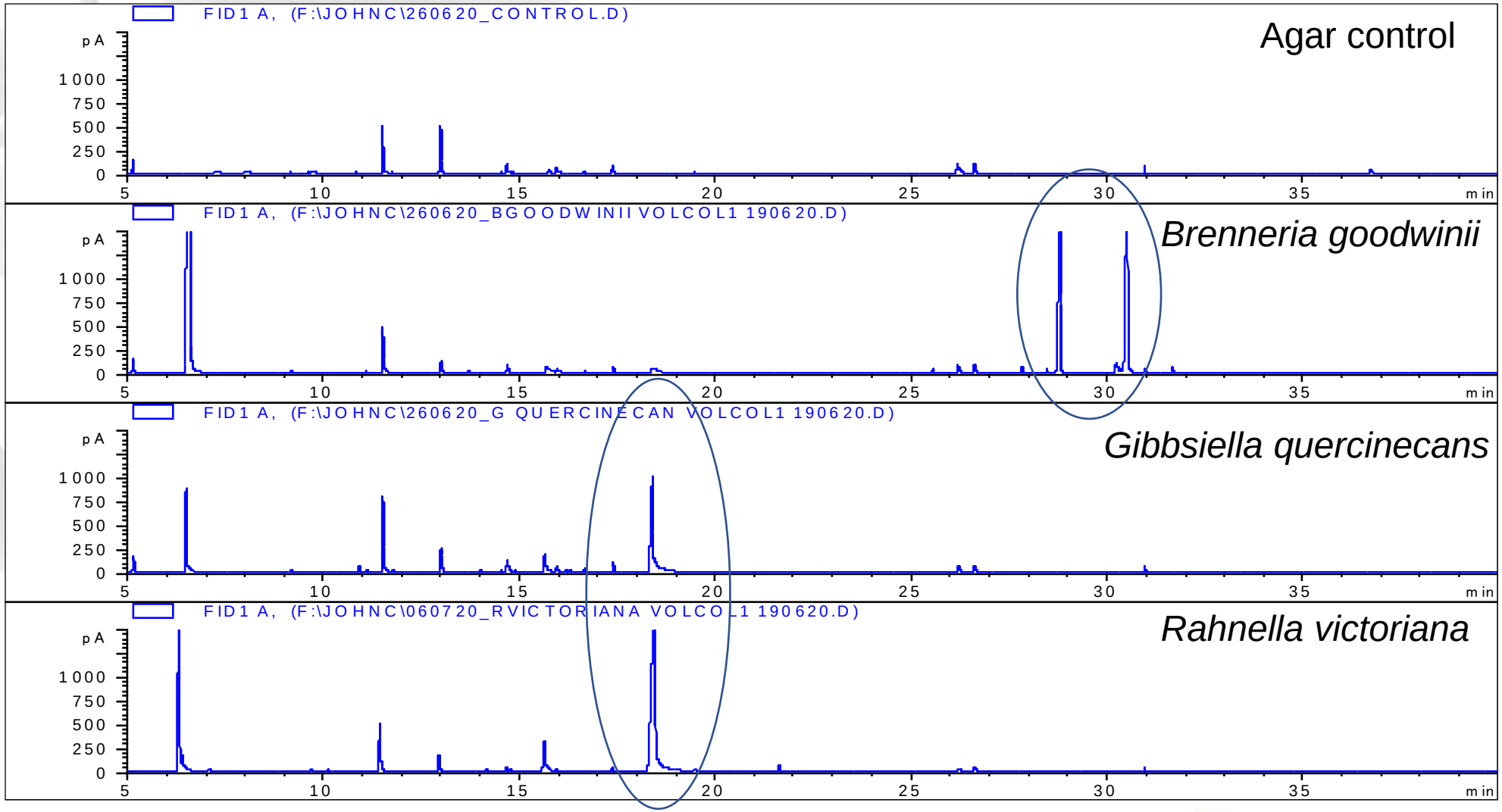

Bacteria produce unique odours, including two compounds specific to *B. goodwinii*

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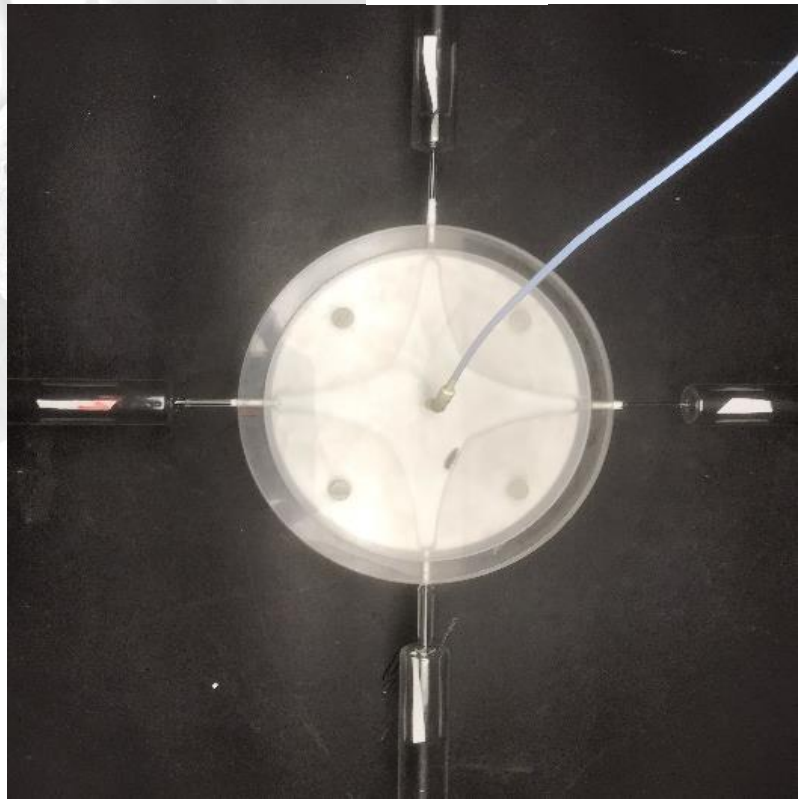

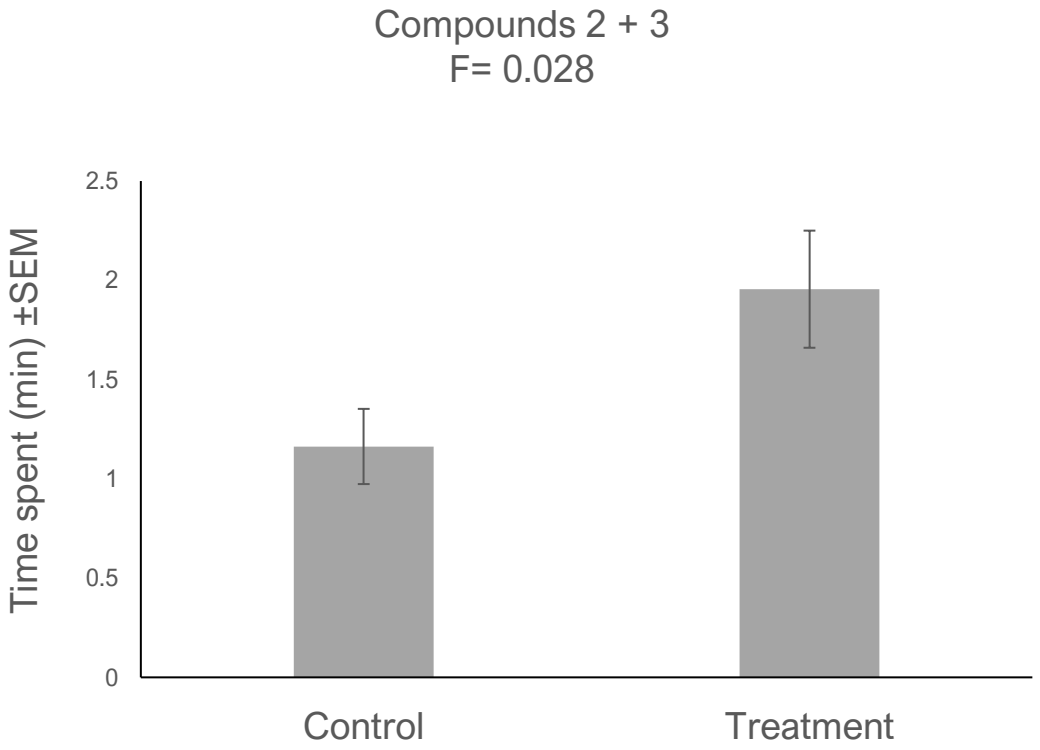

A. biguttatus beetles show preference towards purified compounds from *B. goodwinii*

Conclusions and future work

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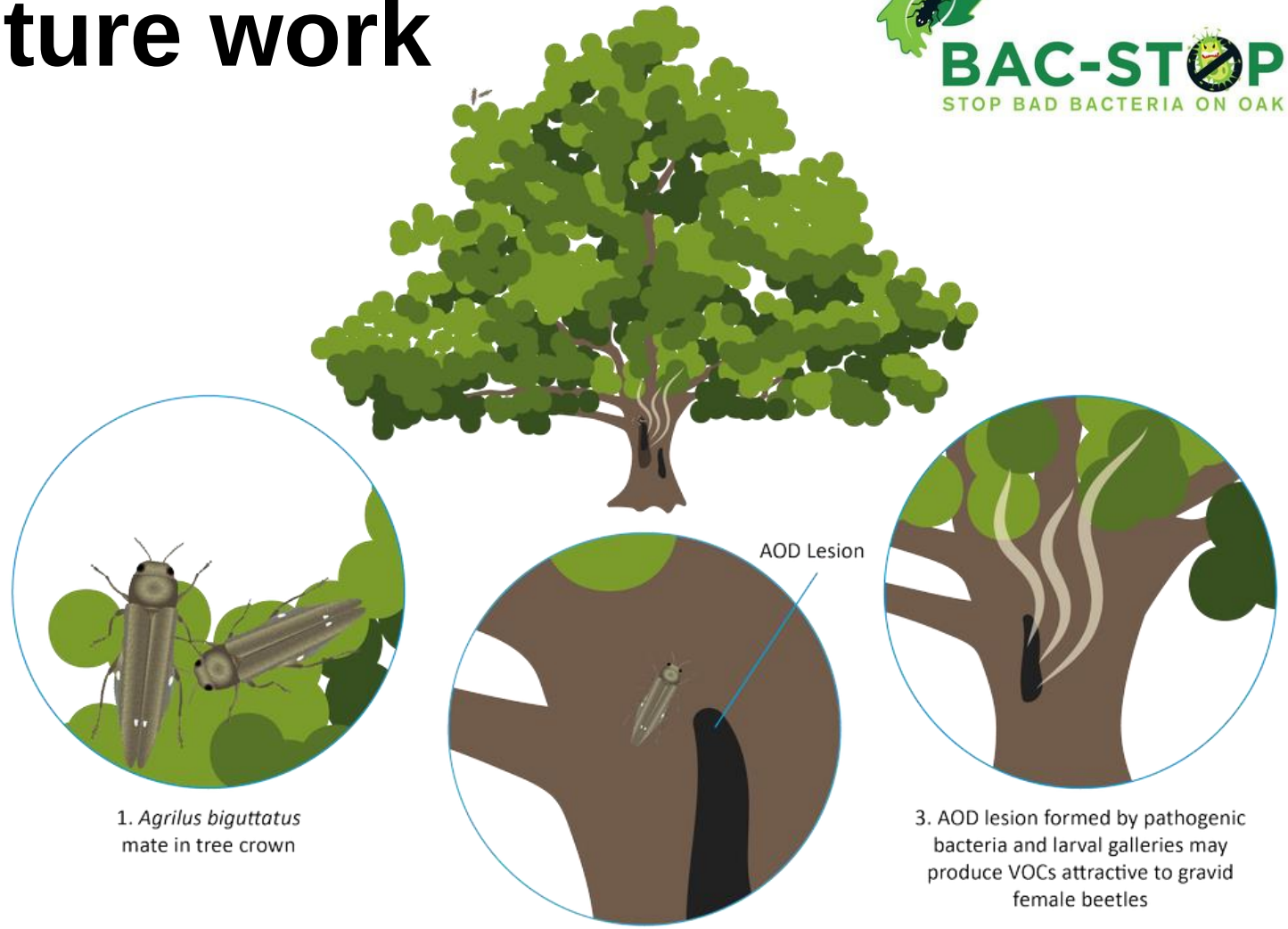
Gravid female beetles show preference towards AOD bacterial odours

Two compounds unique to *B. goodwinii* are involved in this preference

Future work aims to determine whether these odours are attractive in semiochemical-based lures in the field



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