

## **Supplementary Text S2. Detection of QS signals**

30 g of fresh soil was weighed, washed with PBS (pH 5.5), and mixed with ethyl acetate acidified with acetic acid (v/v 1:1000). The mixture was incubated at 250 rpm at 10 °C. After shaking for 12 h, the mixture was centrifuged at 12000 rpm at 4°C, and the ethyl acetate layer was collected. The above procedure was repeated twice with acidified ethyl acetate to extract as many QS signals as possible from the soil. The collected ethyl acetate layer was dried under a nitrogen blower, and then redissolved in a methanol (v/v = 1:1) solution. After passing through a 0.22 µm filter membrane, the obtained filtrate containing signals was stored at -20 °C for future analysis. QS signals in the soil were measured by high-performance liquid chromatography-tandem mass spectrometry (LC-MS; UPLC/Xevo TQD, Waters, USA), and the details are presented in the SI.