

## **Volatile organic compound (VOC) profiles as a fingerprint for pinewood nematode detection – Development of a new portable detection tool**

T1.33 The Pine Wilt Disease dramatic impact on conifers forest across the world, today and in the future

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### **Abstract**

Pine wilt disease (PWD) has spread rapidly and evaded pest management strategies in many Asian countries. In Europe, the first detection of its causal agent, the pinewood nematode (PWN), occurred in Portugal, in 1999. Since then, the PWN has been detected throughout Portugal mainland, Madeira Island and in Spanish pine forests from Galicia and Estremadura provinces. In the last two decades, containment and mitigation of this priority pest has mobilized extensive investment. These efforts were partially inefficient, due also to the limited efficacy of the available detection and monitoring techniques. PURPEST ([purpest.eu](http://purpest.eu)) proposes that volatile organic compound (VOC) profiles specific to the PWN can be used to construct a VOC-based system (Sensor System) for the detection of infected material. This system has the potential to revolutionize the current methodologies by offering an alternative to the traditional collection of wood samples and screening for PWN. To accomplish this task, VOC profiles of the PWN and infected pine material will be analysed through headspace GC-MS, and then used to fine-tune sensor components for the development of optimized sensor systems and, finally, a sensor system prototype will be validated in the field and at import control sites. Implementation of PURPEST advances pest management strategies by allowing an early detection of PWD and increasing the inspection rate in pine stands and woody material from coniferous importations with a non-invasive, reliable and high throughput methodology thus preventing entry into new forestry areas.

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