# Vanilla

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## ABSTRACT

### VANILLA STEM ROT PATHOGEN CAN SURVIVE AS AN ENDOPHYTE WITHIN HEALTHY VINES

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Vanilla is an important and popular cash crop offering high economic returns to smallholding farmers in North Sulawesi, Indonesia. However, vanilla production in this region is greatly constrained by Fusarium stem rot. Although the disease is most severe on the stems, it is also found on the leaves and roots. On the stem internode, small brown water-soaked spots or lesions initially appear, which enlarge and become necrotic, eventually girdling and shrivelling the stem. Etiological studies confirmed the causal agent to be Fusarium oxysporum f.sp. vanillae. Interestingly, although this is a soilborne vascular pathogen, disease lesions are often observed between healthy internodes in the absence of any apparent wounds, raising questions as to the pathogen's mode of entry. We showed in a greenhouse trial that F. oxysporum isolates obtained from healthy stems without any external or internal symptoms were pathogenic on vanilla vines, indicating the possibility of this pathogen surviving as an endophyte within healthy vines. This finding has significant implications on disease management as vanilla is vegetatively propagated and most planting material is obtained from existing farms with various levels of disease incidence.

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