Fusarium diseases affecting pea cultivars across Europe: a characterization of virulence and resistance

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Pea (*Pisum sativum* L.) is one of the most cultivated leguminose plants. With a production that reached 12.4 million tons of dry peas in 2021, this crop is affected by several soil-borne pathogens. One of the major diseases is *Fusarium* wilt, caused by *Fusarium oxysporum* f. sp. *pisi*, which can cause high yield loses from 30 to 50% in pea. In this study, samples of infected pea roots were analysed from important growing areas in Europe, to determine which species were present on those sites. Single spore isolates were obtained from the samples, and initially, their morphology and growth rate in media was investigated. Next, species identification was performed by using PCR and morphological characteristics. Two single spore isolates of *F. oxysporum* were selected for virulence test on a Pea diversity set in greenhouse. Three pea cultivars and a resistant bearing expressing different resistance levels against *F. oxysporum* were tested using a sand-cornmeal mixture previously inoculated with one of the two single spore isolates. The results from these experiments provide important information on possible candidates for breeding programs with proven resistance to *F. oxysporum* and provide cultivars with high yield potential.

The project is supported by funds of the Federal Ministry of Food and Agriculture (BMEL) based on a decision of the Parliament of the Federal Republic of Germany via the Federal Office for Agriculture and Food (BLE) under the innovation support programme.