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Host resistance affects coexistence of two related fungal pathogens *Leptosphaeria maculans* and *L. biglobosa*

ADDRESS

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PLENARY TALKS

In natural conditions, plants are exposed to several pathogens. Plant diseases are often caused by more than one related pathogens that co-exist on their host. There are many factors affecting co-existence of these pathogens on their host that lead to changes in their relative predominance. Phoma stem canker is a damaging disease of oilseed rape (*Brassica napus*) and brassica vegetables. This disease is caused by two related pathogens, *Leptosphaeria maculans* and *L. biglobosa*. Since *L. maculans* has generally been associated with stem base canker while *L. biglobosa* has been associated with upper stem lesions, *L. maculans* was considered more damaging than *L. biglobosa*. However, results of our recent work show that *L. biglobosa* can cause both damaging upper stem lesions and stem base cankers, leading to yield losses. Furthermore, *L. biglobosa* is less sensitive to some triazole fungicides than *L. maculans*. Therefore, effective control of phoma stem canker needs to target both *L. maculans* and *L. biglobosa*. However, previous control of phoma stem canker in the UK has targeted only *L. maculans*; there is no information about cultivar resistance against *L. biglobosa*. To investigate the importance of *L. biglobosa* in phoma stem canker epidemics in the UK, field experiments with different cultivars were done over four growing seasons (2012 - 2016). The severity of phoma stem canker caused by *L. maculans* or *L. biglobosa* was assessed by quantification of the pathogen DNA in infected stem tissues using quantitative PCR (qPCR). The proportions of *L. maculans* and *L. biglobosa* ascospores released over the four growing seasons were assessed using Burkard spore samplers and qPCR. The results showed that cultivars resistant against *L. maculans* were often more susceptible to *L. biglobosa*. The proportions of *L. biglobosa* in the pathogen populations have increased, by comparing with 12 years ago. The reasons for recent increase in proportions of *L. biglobosa* in pathogen populations in the UK will be discussed.

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