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Thursday 7 April

11:10 - 11:30

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Population genetic structure and host specialization in the fungal plant pathogen *Zymoseptoria tritici*

Zymoseptoria tritici causes septoria tritici blotch of wheat, one of the most important diseases of this crop worldwide. Yield losses can reach 50% in disease-conducive climates and epidemics occur regularly both on hexaploid bread wheat (*Triticum aestivum*) and tetraploid durum wheat (*Triticum turgidum* ssp. *durum*). Isolates of *Z. tritici* exhibit both cultivar specificity (ability to infect only some cultivars of either bread or durum wheat) and host species specificity (ability to only infect one or the other wheat species). In France, the major bread wheat growing areas are located in the Northern regions, whereas durum wheat is mainly cultivated in the South-East region. Besides these traditional growing regions, both species are also cultivated in the Centre and South-West regions of France. In this study, we exploited these contrasted agrosystems to investigate, at a population level, the extent of host specialization in *Z. tritici* and to test whether this specificity towards bread or durum wheat had a significant effect on the genetic structure of the fungal populations. A set of 700 *Z. tritici* isolates were sampled from naturally infected fields of bread and durum wheat in these four regions, and genotyped using 12 microsatellite markers. The level of host specialization of 72 isolates from these populations was also determined by cross inoculation experiments on a panel of bread and durum wheat cultivars.