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Poster Abstract - D.41

CLONING OF THE MATING-TYPE IDIOMORPHS OF *PYRENOPHORA TERES* AND *P. GRAMINEA*, AND THE SEQUENCE VARIATION BETWEEN THE MATING-TYPE GENES OF THE NET AND SPOT FORMS OF *P. TERES*, THE CAUSAL AGENT OF "NET BLOTCH" ON BARLEY

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The mating-type genes from the heterothallic ascomycetes *Pyrenophora teres* and *P. graminea* are here isolated and described: *P. teres* f. sp. *teres*: *MAT-1*: 1190 bp; *MAT-2*: 1055 bp; and *P. graminea*: *MAT-1*: 1190 bp; *MAT-2*: 1055 bp. The predicted protein products of MAT-1 and MAT-2, of 379 and 333 aminoacids, respectively, are similar to those of other fungi belonging to *Pleosporales* and strikingly similar to those of *P. teres*. Moreover, *P. graminea* appears slightly closer to the spot form (SF; four fixed nucleotide differences in the coding region) than to the net form (NF; seven fixed differences in the coding region and one in the intron) of net-blotch disease.

Fragments of the *MAT-1* (1158 bp) and *MAT-2* (1068 bp) genes have also been sequenced from *P. teres* isolates of both the NF (22 isolates; 12 *MAT-1* and 10 *MAT-2*) and the SF (17 isolates; 10 *MAT-1* and 7 *MAT-2*) collected from Sardinian barley landrace populations and worldwide. The polymorphism within each *forma specialis* was low. When the two forms were pooled, polymorphism increased. More than 80% of the total nucleotide variation was found between *formae speciales* (FST = 0.837 for *MAT-1* and FST = 0.879 for *MAT-2*); the two forms do not share any polymorphisms. Diagnostic nucleotide polymorphisms were also found, in the *MAT-1* intron (1) and in the *MAT-1* (3) and *MAT-2* (2) exons. When the putative peptides were compared, three diagnostic non-synonymous mutations were found, one in MAT-1 and two in MAT-2.

Neutrality tests are consistent with the null-hypothesis of a pure drift mutation process, i.e. no selection effects (positive or purifying) were detected, both in considering the two forms or all of the three taxa (NF, SF and *P. graminea*).

Overall, these data suggest that hybridization between the two forms of *P. teres* is rare or absent under field conditions.