CONTINENT-WIDE CLONAL LINEAGES OF *PHYTOPHTHORA CINNAMOMI* SHOW FREQUENT MITOTIC RECOMBINATION

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Genetic studies of *Phytophthora cinnamomi* using isozymes have revealed low levels of diversity suggesting, though not proving, clonality in a large proportion of worldwide populations (1). In Australia, only three isozyme types (representing both mating types) are found with no evidence for sexual recombination (2). Using microsatellite markers, we have shown that these isozyme types are clonal lineages of *P. cinnamomi* and that these same lineages are found elsewhere in the world. Our study used 647 isolates from three intensively and hierarchically sampled *P. cinnamomi* disease fronts located in south-west Australia. In addition 133 isolates from an Australia-wide culture collection and 27 isolates from elsewhere in the world were analysed with four microsatellite markers. One disease front contained all three clonal lineages within close proximity in soil and plant tissue but no sexual recombinant isolates were found, even with very intensive sampling. However, within these clonal lineages we frequently found evidence for mitotic recombination (mitotic crossing over). This mechanism for producing genetic variation may explain phenotypic variation known to occur within the identified clonal lineages.

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