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Molecular marker development for introgression of nematode resistance in potato breeding programs: exploitation of [*i*]solanum spegazzinii[/*i*] resistance source

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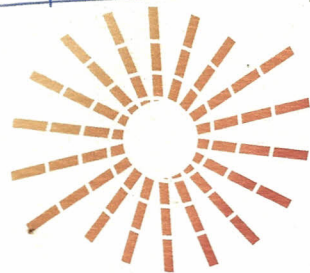
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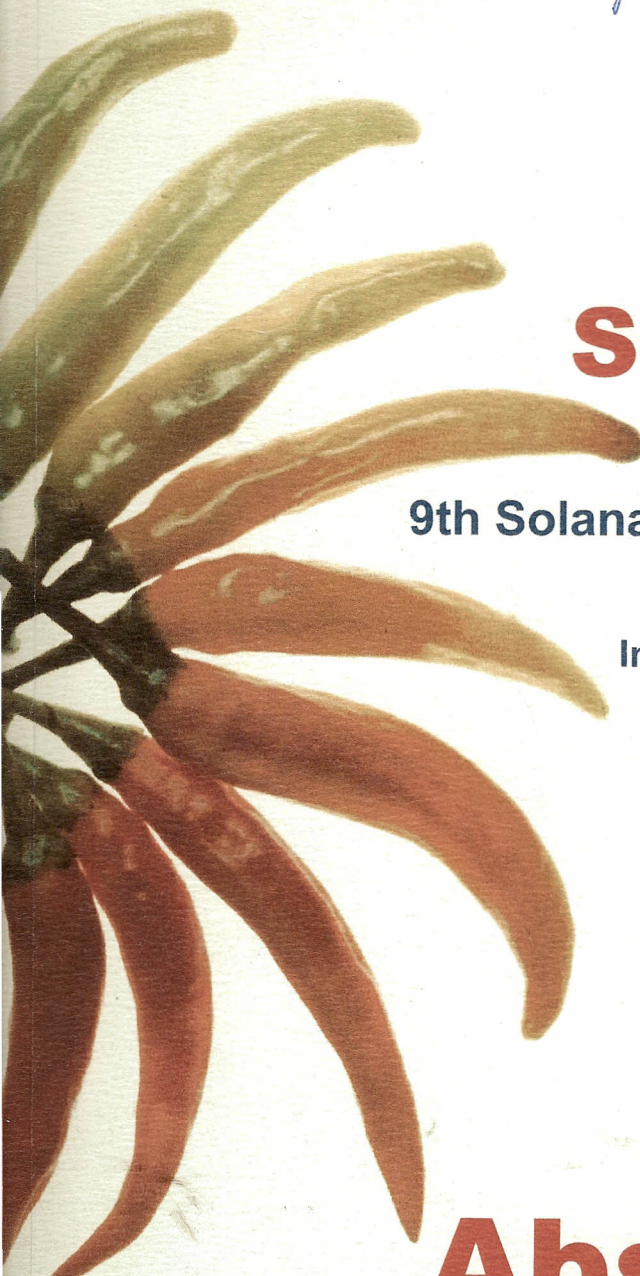
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Veronique Lefebvre



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Abstract
Book

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Molecular marker development for introgression of nematode resistance in potato breeding programs: exploitation of solanum spegazzinii resistance source

Laura Chauvin, Marie-Laure Lesage, Sylvain Fournet, Bernard Caromel, Josiane Queré, Jean-Paul Dantec and Marie-Claire Kerlan

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Present worldwide, the potato cyst nematode *Globodera pallida* is a quarantine pest and causes serious damages to potato crops. In infested areas, the use of appropriate agronomical practices and the choice of resistant genotypes aim to restrict or prevent nematode multiplication. Genetic resistance is a cost-effective and environment-friendly way to contribute to the control of this pest. Resistance genes and QTLs have been identified and some of them already introgressed into cultivated potato varieties from wild tuberous related species. In IGEPP INRA breeding program, we explored three wild tuber bearing species conferring a high resistance level to *G. pallida*: *Solanum vernei*, *S. sparsipilum* and *S. spegazzinii*. They all carry a major QTL on chromosome V with minor QTLs on chromosomes IX, XI or VI and XII. Thereby, the resistance to this pest seems to be complex and depending on QTL interactions. Different QTLs and alleles may be combined to increase the resistance durability. Recently, the sequence of GpaVspl was patented and allele-specific molecular markers were derived for marker-assisted breeding. Development of markers for *S. vernei* alleles is also in progress, but markers useful in *S. vernei* and *S. sparsipilum* genetic backgrounds have not yet allowed the identification of *S. spegazzinii* alleles. In this work we present the result of our progress in molecular markers development for the *S. spegazzinii* GpaV resistance QTL. These allele specific markers allow the combinations of several GpaV alleles and other minor QTL alleles and increase the speed and precision of potato breeding for *G. pallida* resistance. By this way, efficiency and durability of the resistance might be increased.