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ABSTRACT

Validation of novel DArTseq-derived molecular markers for blackleg resistance identification in rapeseed (Brassica napus L.) using PCR. Janetta Niemann

Rapeseed (Brassica napus L.) is one of the most important oilseed crops devastated by blackleg disease each year. Thus, it is crucial to develop new varieties of resistant rapeseed. Importantly, tracking molecular markers through Marker Assisted Selection (MAS) is an effective and environmentally friendly screening method for plant resistance against the disease.

In this study, 15 molecular markers linked to rapeseed blackleg resistance were identified based on results of DArTseq genotyping and field phenotyping of 183 double haploid (DH) lines. Among them, SilicoDArT and SNP markers were found. Subsequently, primers were designed for their identification using PCR. The presence of PCR product was correlated with the varying resistance of twenty selected DH lines.

As a result, seven markers that differentiate rapeseed resistance to blackleg, along with their corresponding PCR primer sequences were selected. Combined, they have the potential to become a valuable tool that will be useful in plant breeding to increase rapeseed yield worldwide.