

A molecular marker database of rapeseed varieties

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Molecular marker databases provide powerful tools for research and commercial plant breeding. DNA fingerprints of currently registered as well as older varieties and accessions from gene banks allow a reliable variety description and identification. They help to detect marker–trait associations as a prerequisite for marker assisted selection, molecular analyses of quantitative traits and genetic distance analyses for research and hybrid breeding. TraitGenetics establishes molecular marker databases for rapeseed using proprietary microsatellite and SNP markers. On the molecular marker side, the databases includes information like marker type, primer and flanking sequences as well as PCR conditions, genome location and general remarks. On the plant side, there are lists of varieties, breeders and rights as well as further information concerning a description of economic and phenotypic characteristics of the variety as far as they are publicly available. Within these analyses, TraitGenetics has developed a validated set of microsatellite markers that can be used for marker analysis and services to rapeseed breeding companies. In addition, an SNP marker set will be developed through comparative sequencing of PCR products derived from both ESTs and genomic sequences of selected varieties. SNPs occur within the genome more frequently than other marker types, are amenable to high throughput analysis and have very low mutation rates, making them ideally suited for genotyping of such large scale projects.