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Identification and Fine Mapping of QTLs Conferring Clubroot Resistance in *Brassica oleracea*

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Throughout the world, clubroot disease is one of the most damaging diseases affecting *Brassica oleracea*. In order to perform QTL analysis of CR (clubroot resistance) loci in *B. oleracea*, we constructed a map, and analyzed CR-QTLs using the mean phenotypes of F3 progenies from the cross of a resistant double-haploid cabbage line (Anju) with a susceptible double-haploid broccoli line (GC). We identified one major QTL, *Pb-Bo(Anju)1* in C2 from Anju and four minor QTLs; *Pb-Bo(GC)1* in O5 from GC, *Pb-Bo(Anju)2*, -3, -4 in C2, C3, and C7 from Anju, respectively. Additionally, we found that the accumulation of *Pb-Bo(Anju)1* allele and the minor CR-QTLs is essential for resistance against various six isolates. Our finding markers closely linked to the CR-QTLs will help marker-assisted selection for CR. At present, we are undergoing toward map-based cloning for *Pb-Bo(Anju)1* gene. The preliminary experiment delimited *Pb-Bo(Anju)1* locus, encompassing among 450kB.