論文名： **Genetic analysis for tuberous stem formation of kohlrabi (*Brassica oleracea* var. *gongylodes* L.)**

〔コールラビ（*Brassica oleracea* var. *gongylodes* L.）の茎肥大に関する遺伝解析〕（要約）

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（以下要約を記入する）

The tuberous stem of kohlrabi is an important quantitative trait, which affects its yield and quality. Genetic command of this trait is not unveiled yet. To identify the QTLs controlling stem swelling of kohlrabi, a BC_1 population of 92 plants was developed from the cross of broccoli DH line GCP04 and kohlrabi var. Seine. A wide range of variation for tuberous stem diameter was observed among the mapping populations. We have constructed a genetic map of nine linkage groups (LGs) with different types of markers, spanning a total length of 913.5 cM with an average marker distance of 7.55 cM. Four significant QTLs for radial enlargement of kohlrabi stem, namely, *REnBo1*, *REnBo2*, *REnBo3*, and *REnBo4* were detected on C02, C03, C05, and C09, respectively, and accounted for 55 % and 59 % of the phenotypic variation for stem swelling grade and stem diameter, respectively. Then, we confirmed the stability of identified QTLs using BC_1S_1 populations derived from the BC_1 plants having heterozygous alleles at the target QTL and homozygous kohlrabi alleles at the remaining QTLs. *REnBo1*and *REnBo2* using 128 plants of BC_168S_1 and 94 plants of BC_143S_1, respectively, and *REnBo3* and *REnBo4* using 152 plants of BC_157S_1 were detected at the same positions as the respective QTLs of the BC_1 population. Confirmation of QTLs in two successive generations indicates that the QTLs are persistent. The QTLs obtained in this study can be useful in marker-assisted selection of kohlrabi breeding, and to understand the genetic mechanisms of the stem swelling and storage organ development in kohlrabi and other *Brassica* species.