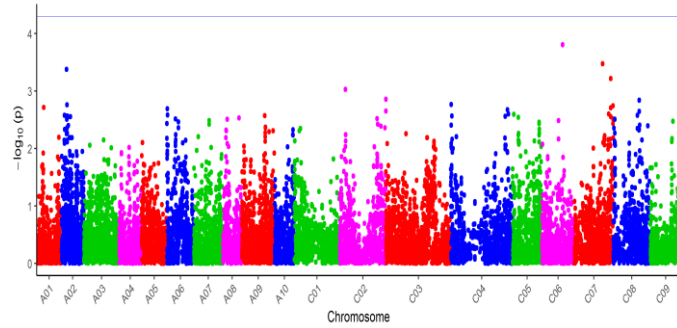
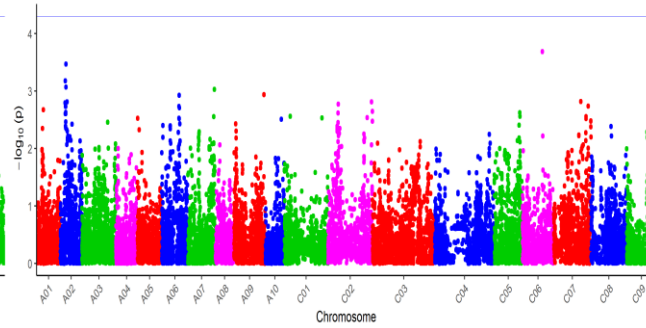


Figure S7A. Manhattan of phenotype-genotype association analysis for twelve root-related traits of *B. napus* by MLM in WH17. The different colors in the plots indicate the 19 chromosomes from A01 to C09; the thick horizontal lines represent the threshold values ($-\log_{10}1/20,131 = 4.30E-5$). The colors dots above the threshold values indicate the significant SNPs

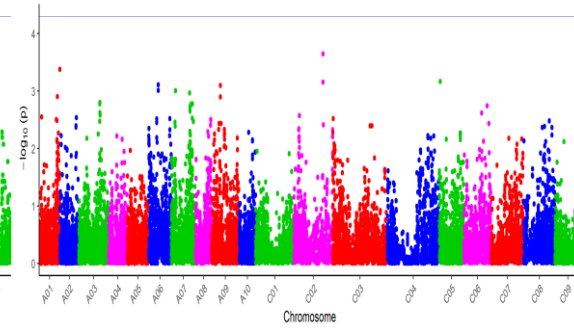
RFW-WH19



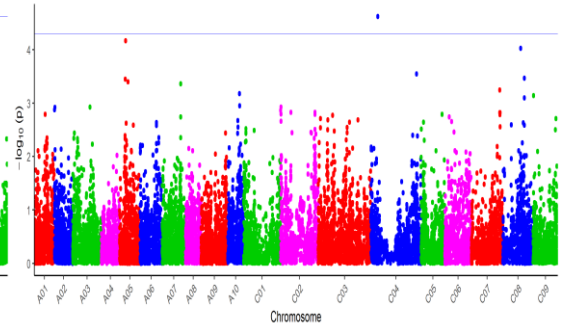
DMR-WH19



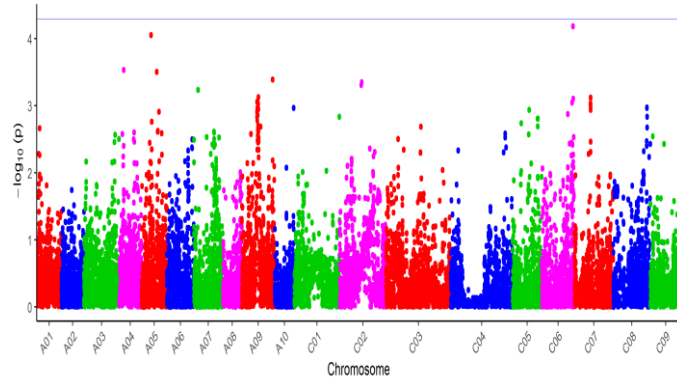
TRL0.5-WH19



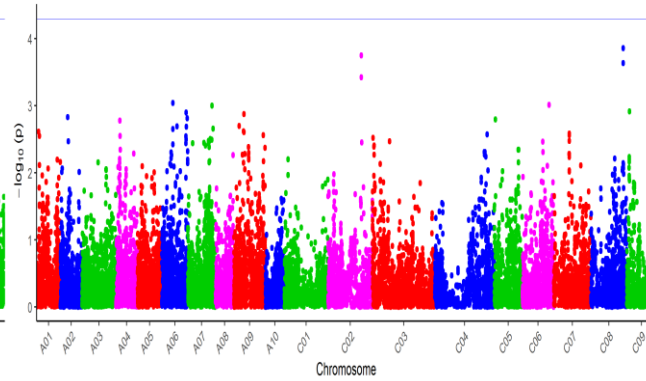
PRL-WH19



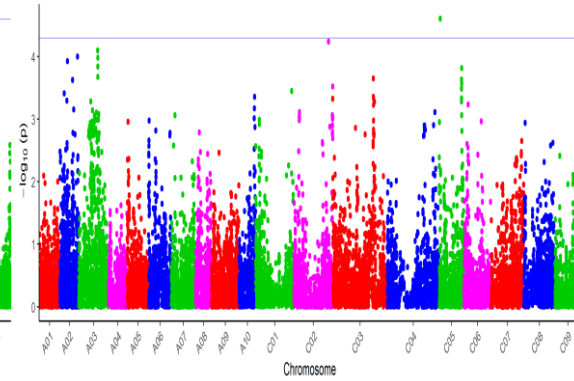
TRN-WH19



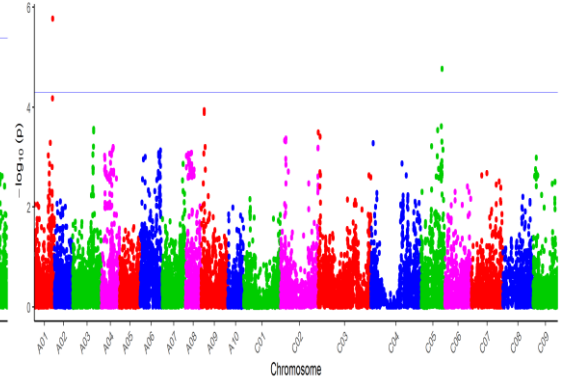
TRL-WH19



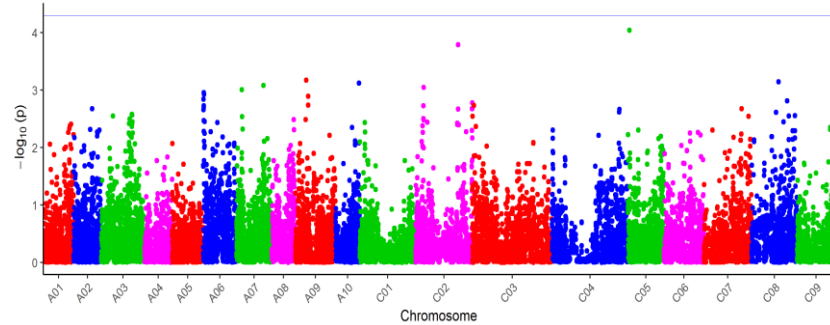
TRV0.5-WH19



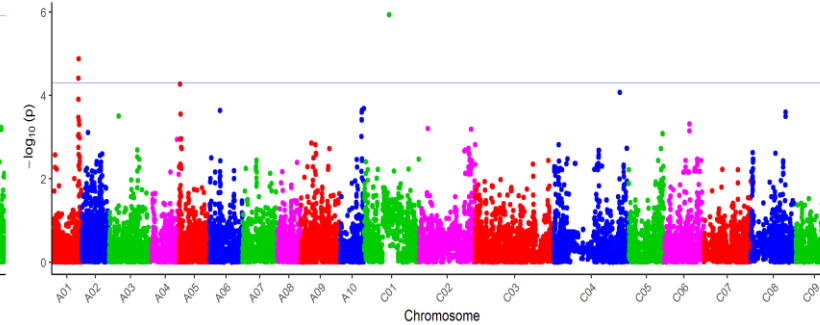
TRN0.5-WH19



TSA0.5-WH19



TRV-WH19



TSA-WH19

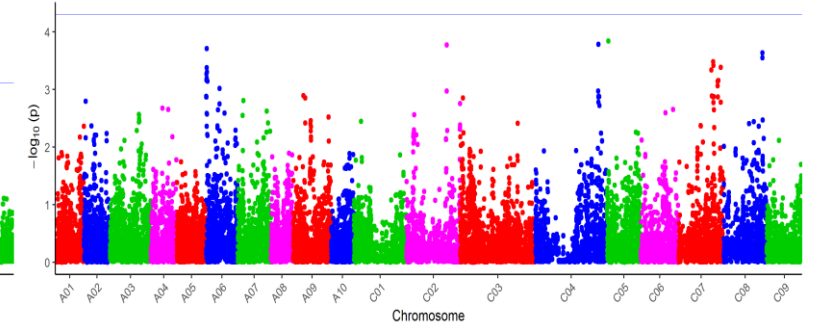
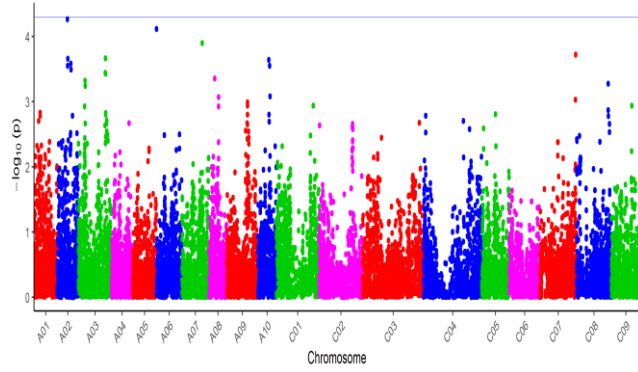
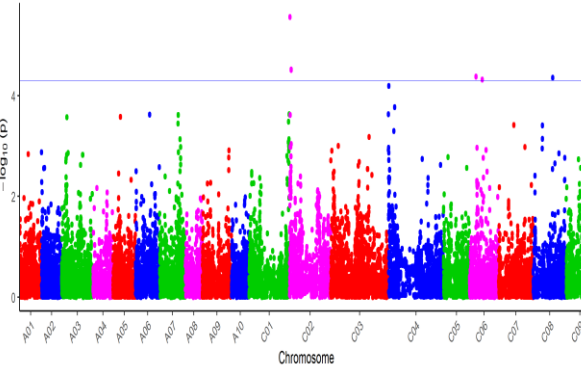


Figure S7B. Manhattan of phenotype-genotype association analysis for twelve root-related traits of *B. napus* by MLM in WH19. The different colors in the plots indicate the 19 chromosomes from A01 to C09; the thick horizontal lines represent the threshold values ($-\log_{10}1/20,131 = 4.30E-5$). The colors dots above the threshold values indicate the significant SNPs

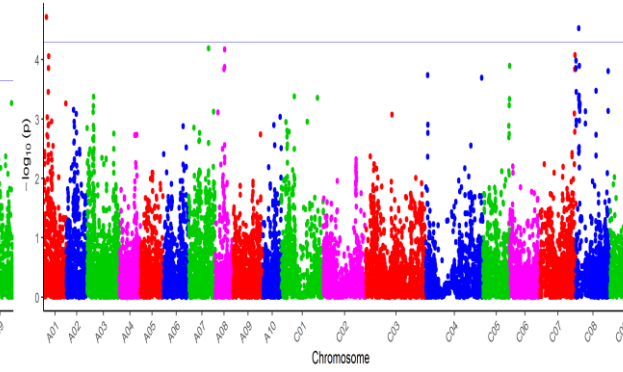
RFW-WH20



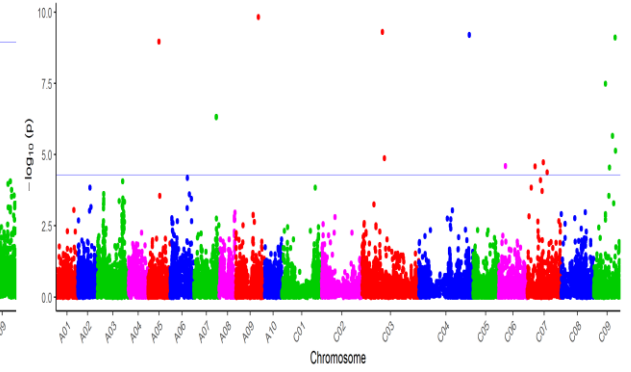
PRL-WH20



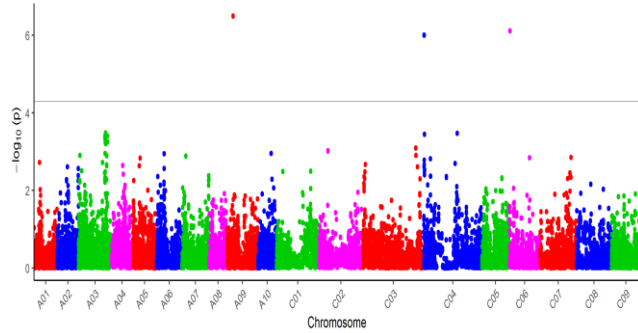
DMR-WH20



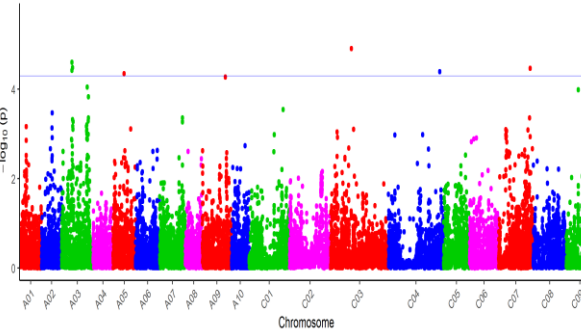
TRL0.5-WH20



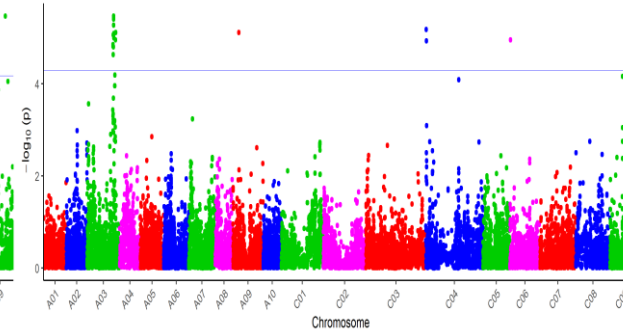
TRN-WH20



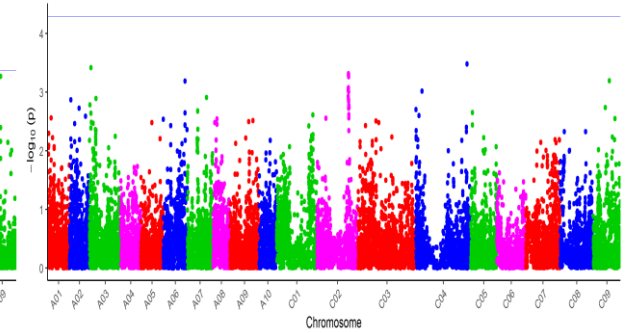
TRN0.5-WH20



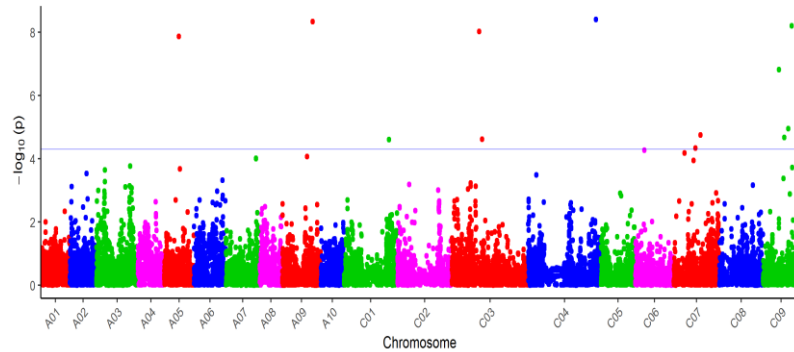
TRL-WH20



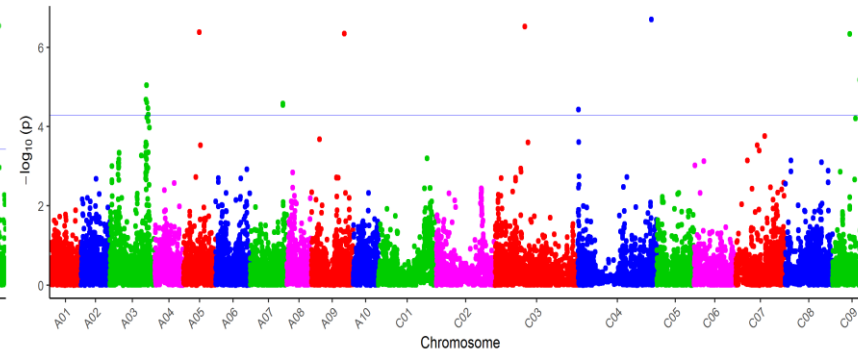
TRV0.5-WH20



TSA0.5-WH20



TSA-WH20



TRV-WH20

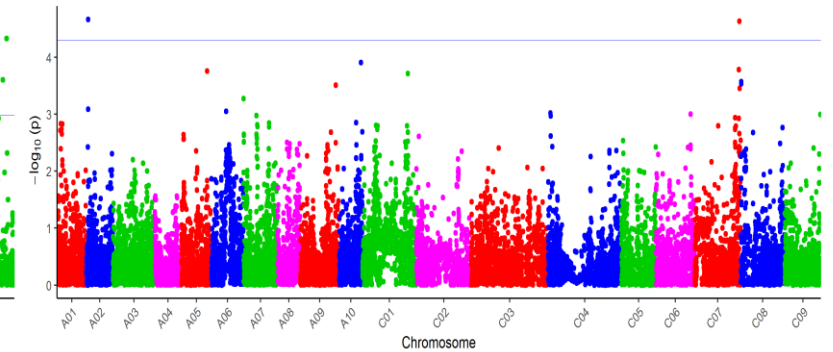
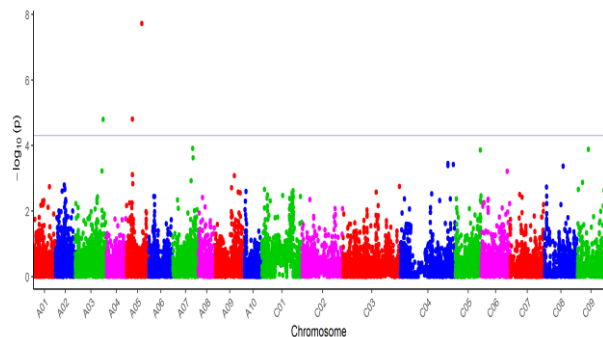
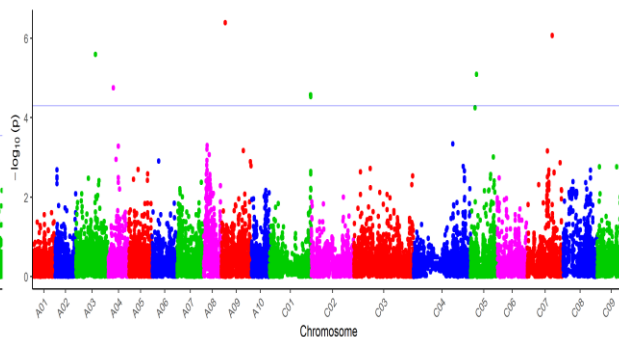


Figure S7C. Manhattan of phenotype-genotype association analysis for twelve root-related traits of *B. napus* by MLM in WH20. The different colors in the plots indicate the 19 chromosomes from A01 to C09; the thick horizontal lines represent the threshold values ($-\log_{10}1/20,131 = 4.30E-5$). The colors dots above the threshold values indicate the significant SNPs

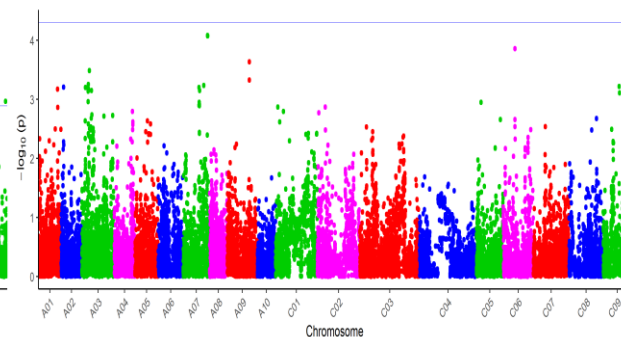
RDW-BLUE



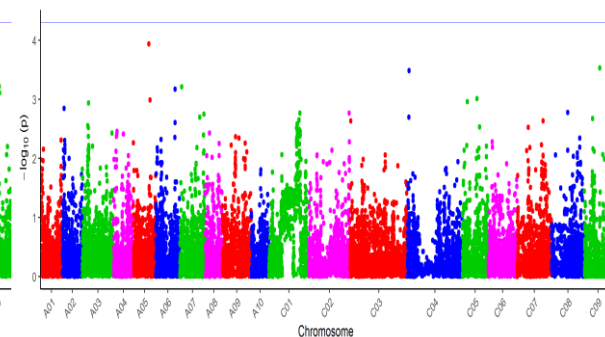
PRL-BLUE



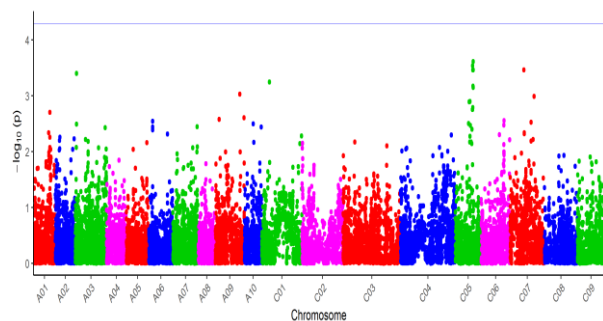
DMR-BLUE



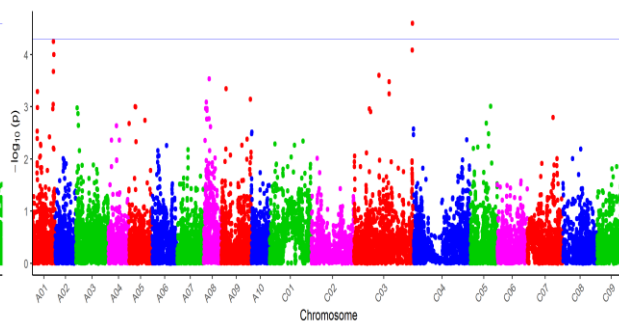
RFW-BLUE



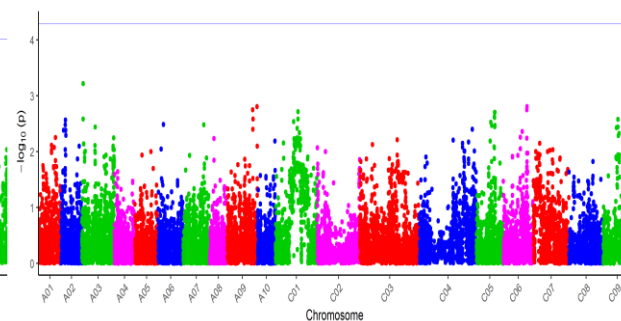
TRL0.5-BLUE



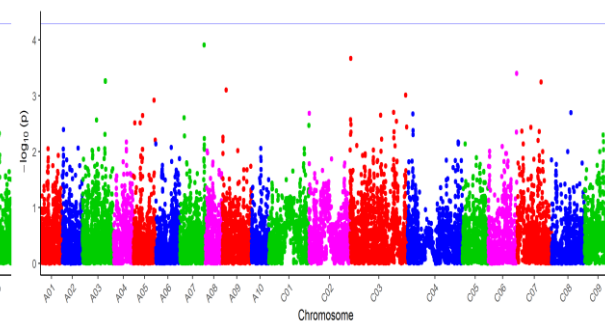
TRN-BLUE



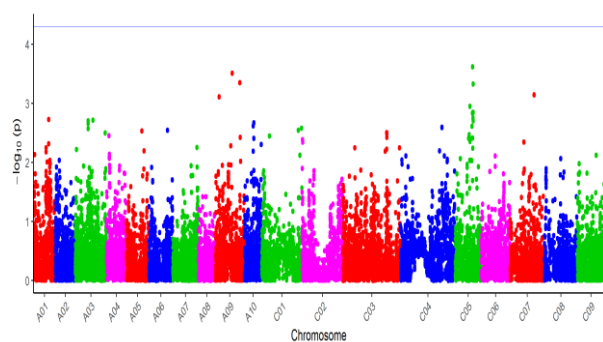
TRL-BLUE



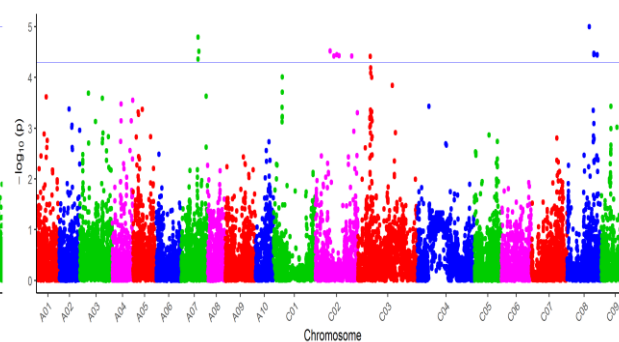
TRN0.5-BLUE



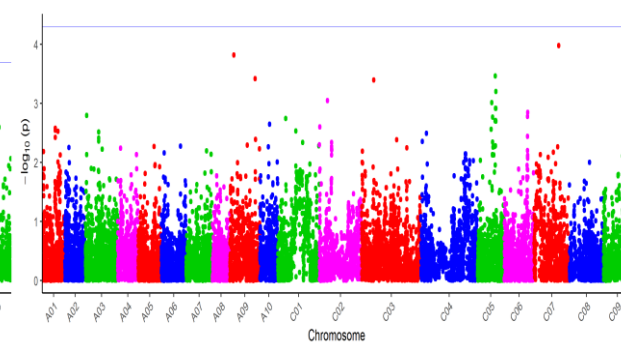
TSA0.5-BLUE



TRV-BLUE



TSA-BLUE



TRV0.5-BLUE

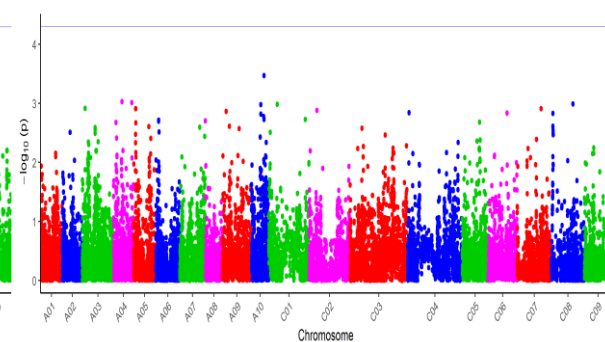


Figure S7D. Manhattan of phenotype-genotype association analysis for twelve root-related traits of *B. napus* by MLM using BLUEs. The different colors in the plots indicate the 19 chromosomes from A01 to C09; the thick horizontal lines represent the threshold values ($-\log_{10}1/20,131 = 4.30E-5$). The colors dots above the threshold values indicate the significant SNPs