

SELFING RATE AND POPULATION STRUCTURE IN ARABIDOPSIS THALIANA

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Arabidopsis thaliana is a highly selfing species, with a very small portion resulting from selfing. An early electrophoretic study based on polymorphic enzymes [Abbott et al 1989] put the selfing rate to be less than 0.3%.

Given the polymorphism data of genome wide 149 SNPs in 5720 strains, we set out to improve the estimate of the selfing rate in terms of accuracy and resolution. Initial rates estimated through the heterozygosity deficiency show that extensive variation exists among 149 loci. This leads us to think these loci might be subject to different levels of selection which changes the heterozygosity level. We are working on a higher-density ~250,000-SNP data to get a clue on the level of selection at each loci.

The initial selfing rate estimates show no major regional differences. The definition of "population" (by geographic distance) affects the estimates as expected. Within each population, different (recombinant) lineages are characterized. We also try to find out whether shared lineages exist between nearby populations by looking at shared haplotypes.