

## Identification of QTLs Associated with Flowering and Maturity Traits in Two Recombinant Inbred Lines of Soybean

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### Objective

Flowering and maturity in soybean are important reproductive traits of agronomic interest and these traits plays a important role for developing soybean cultivars with a wider geographical adaptation. The objective of this research was to identify QTLs for flowering and maturity with SSR markers in two RILs.

### Material and Method

- Materials
  - Keunolkong × Shinpaldalkong, Keunolkong × Iksan 10 F2:11 RIL
- Field experiment
  - Location(year) : Milyang(2001), Suwon(2005), Yeoncheon(2005)
  - Plot arrangement: Randomized Complete Block Design with two replication
  - Traits : Flowering(R1), Maturity(R7)
- Molecular data
  - SSR primer, agarose(3%) or silver staining(4%)
- Map construction and QTL analysis
  - Single marker analysis(SAS program v 9.1)

### Result

- The values of days to flowering and maturity in segregants of the two populations were exceeded those of the parental values and showed normal distributions but different across populations and locations.
- As a result of identification of QTLs for days to flowering and maturity, several QTLs were mapped on LG B1, A2, B1, C2, D1b, E, I, J, K, L, M and O in two RIL populations.
- In Keunolkong/ Shinpaldalkong, the major QTLs for flowering or maturity across the location were identified on LG D1, L, and O. However QTLs linked on LG B1, C2, M, D1, F, J, and O were identified as a major QTL across location in Keunolkong/ Iksan 10.
- Among the QTLs identified in this experiment, the QTLs linked to LG O and C2 near *E2* and *E1* gene were commonly associated with flowering and maturity across location and may be used for MAS in soybean breeding system.

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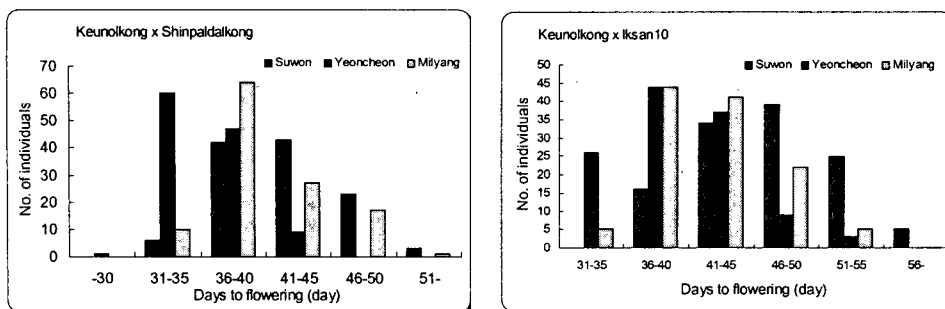
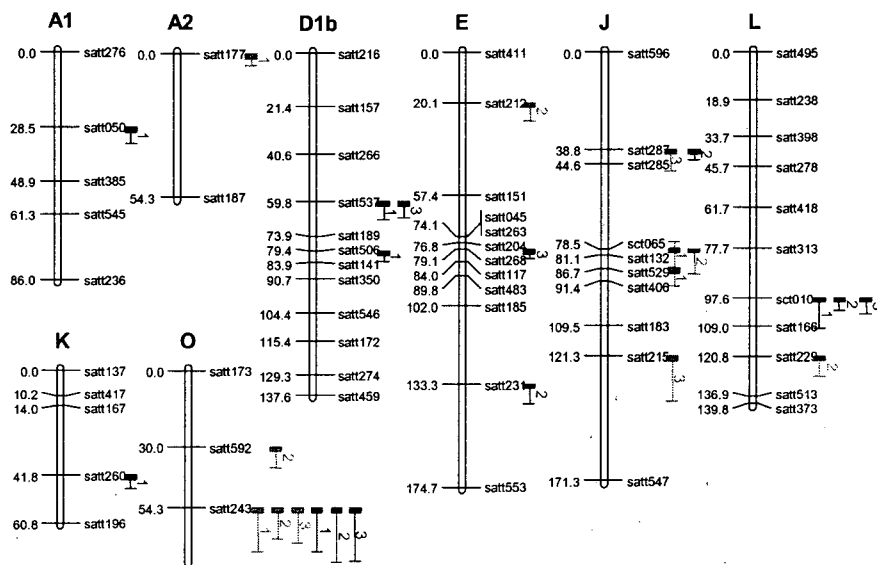


Fig1. Frequency distribution of days to flowering, and maturity in two RIL populations

- Pop1: Keunolkong/ Shinpaldalkong



- Pop2: Keunolkong/ Iksan10

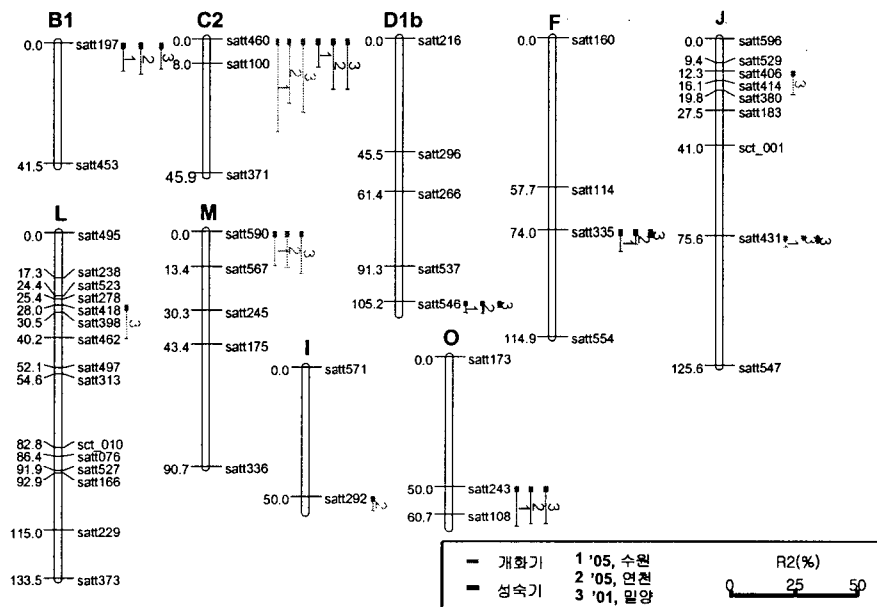


Fig. 2. The Location of QTLs associated with flowering(red) and maturity(blue) in two population. QTLs significant are represented with vertical bars. ①:Suwon ② Yeoncheon ③ Milyang