

Ratanakorn Kitsanachandee 2012: Identification of SSR Markers Tagged to Yellow Mosaic Virus Resistance in Mungbean (*Vigna radiata* (L.) Wilczek). Doctor of Philosophy (Plant Breeding), Major Field: Plant Breeding, Faculty of Agriculture at Kamphaeng Saen. Thesis Advisor: Professor Peerasak Srinives, Ph.D. 57 pages.

The study was conducted to evaluate mungbean recombinant inbred lines (RILs) against *mungbean yellow mosaic virus* (MYMV). A recombinant inbred line (RIL) mapping population was generated in Thailand from a cross between NM10-12-1 (MYMV resistance) and KPS2 (MYMV susceptible). One hundred and twenty-two mungbean RILs in an F₈ series were evaluated in a field in comparison with resistant parent NM-10-12-1 and susceptible parent KPS2 during summer 2008 under high inoculum pressure. A large number of RILs (60) were found susceptible, 49 were highly susceptible, 10 were tolerant and 3 were highly resistant. Overall screening results showed that three RILs, viz. line no. 30, 100 and 101, were good sources of resistance to MYMV in spite of high disease pressure and can therefore be used directly as varieties to control the MYMV disease in Thailand. This study reported for the first time mapping of quantitative trait locus (QTL) for MYMV resistance in mungbean. A genetic linkage map was developed from the RIL population using simple sequence repeat (SSR) markers. Single marker analysis of QTL identified 9 markers on linkage group (LG) 5 and 10 associated with the MYMV resistance. Composite interval mapping identified a single QTL, *qMYMV*, on LG 5 controlling the resistance. *qMYMV* explained 47.43% of disease variation. Markers DMB-SSR121 and MB-SSR248 flanking the *qMYMV* at the 5.2 cM interval are useful for marker-assisted selection of MYMV-resistance cultivars.

Student's signature

Thesis Advisor's signature