

Resistance to Black Rot in *B. rapa*

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Black Rot

- Systemic bacterial disease caused by *Xanthomonas campestris* pv *campestris*
- Most important bacterial disease of vegetable brassicas worldwide
- Difficult to control
- V. little resistance in *B. oleracea*
- Quantitative resistance to races 1 & 4 in *B. rapa* B162



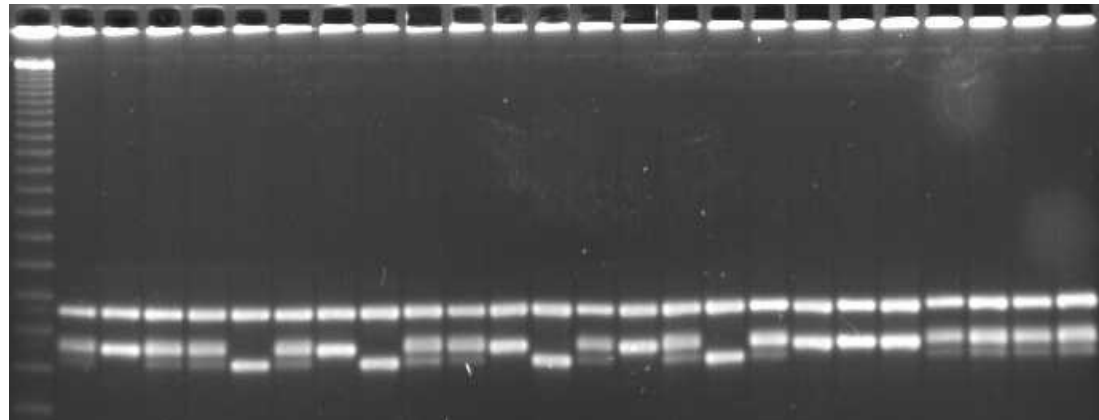
Markers for resistance

B162 (Resistant) x R-o-18 (susceptible)

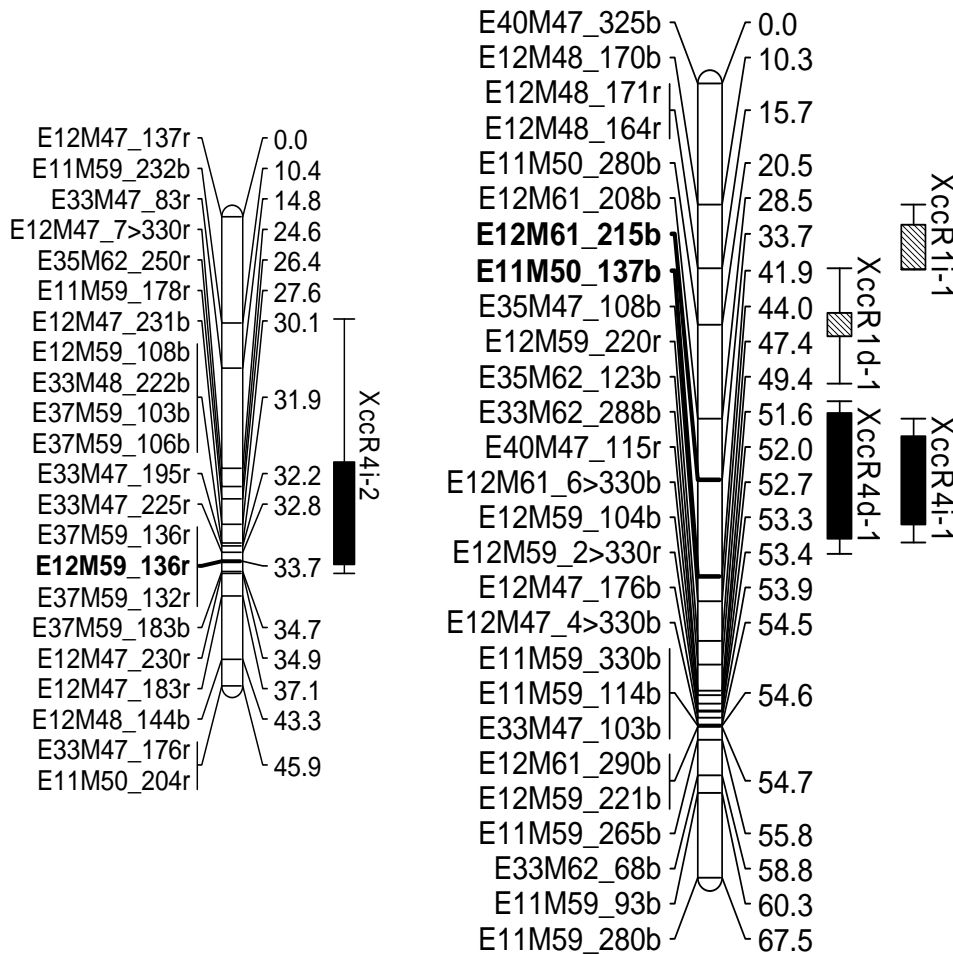
F2 population

Resistance tests

**Marker screening/mapping
(SSR & AFLP)**



QTL analysis for Black rot resistance



B. Rapa F2 linkage map
10 LG, 663 cM

2 components scored:

- disease score
- % positive infection points

- 2 QTL for Race 1 resistance
- 3 QTL for Race 4 resistance
- QTL cluster on LG 6

New Project – BBSRC/DFID Sustainable Agriculture Research for International Development (SARID)

“Accelerated breeding of black rot resistant brassicas for the benefit of east African smallholders”

Objectives

- Characterisation of the major components of resistance.
- Fine-scale mapping to identify closely linked markers and candidate genes.
- Cloning of candidate genes and transformation into *B. oleracea*.
- Assess the broad spectrum potential of the *B. rapa* resistance against a range of Xcc isolates.
- Survey allelic variation for resistance loci using Brassica DFFS.
- Identification of Xcc resistant pre-breeding lines for use in East Africa.

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