A second gene for leaf edge necrosis, *len-2*, located on chromosome 5

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Several mutants characterised by papery necrosis of the leaf tissue were isolated by Swiecicki (3). The degree and type of necrosis varied but the phenotypes were generally similar to those conferred by *len* (1) and *bulf* (2). The mutant line Wt11319, isolated from cv. Kaliski after treatment with 350 r Nf + 0.014% NEU, has a phenotype very similar to *len* which causes necrosis of the leaf edge margins (1). The leaflets and stipules of the new mutant have a necrotic, papery margin with a variable degree of expression. The only difference between the two mutants is that *len* causes dotted necrosis of the leaf edge whereas our mutant shows whole region necrosis of the margin.

To test for allelism, mutant Wt11319 was crossed with the type lines for *len* (Wt15861) and *bulf* (Wt15872). In both crosses the F_1 had a normal phenotype indicating that mutant Wt11319 is not allelic with *len* or *bulf*. The new mutant showed monogenic recessive inheritance. We therefore propose a new locus, *len-2* (leaf edge necrosis), with Wt11319 as the type line for the *len-2* allele.

To test for linkage, line Wt11319 was crossed with marker lines Wt11288, Wt11143, Wt11745 and Wt15860. No evidence of linkage was found for *len-2* and markers *b, st* and *M* on chromosome 3, *v, fa* and *n* on chromosome 4, and *tl*, *coch* and *r* on chromosome 5. However, evidence of disturbed dihybrid segregation was found for *len-2* and markers located in the lower half of chromosome 5 according to the recent linkage map of Weeden et al (4). Data from the F_2 of cross Wt11319 (*len-2 Creep*) x Wt15860 (*Len-2 creep*) indicated a distance of 20 ± 9 cM between *len-2* and *creep* (57 *Len-2 Creep,* 24 *Len-2 creep*, 26 *len-2 Creep* and 0 *len-2 creep*; $\chi^2 = 9.9$, $P < 0.01$) and data from the F_2 of cross Wt11319 (*len-2 Gp*) x Wt11238 (*Len-2 gp*) indicated a distance of 20 ± 8 cM between *len-2* and *gp* (87 *Len-2 Gp,* 43 *Len-2 gp,* 22 *len-2 Gp,* 0 *len-2 gp*; $\chi^2 = 10.1$, $P < 0.01$). We believe that *len-2* may be located between *gp* and *creep* but further tests are necessary to determine the position of the locus more precisely.

1. Marx,G.A. 1980. Pisum Newsl. 12:52-53.
2. Sharma, B. 1973. Pisum Newsl. 5:46.
3. Swiecicki, W.K. 1984. Pisum Newsl. 16:84-86.
4. Weeden, N.F., Ambrose, M. and Swiecicki, W.K. 1991. Pisum Genetics 23 Cover.