ALLEL1SM TESTS ON LINES WITH THE ERECTOIDES PHENOTYPE

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The erectoides phenotype in Pisum, conferred by the recessive gene lk, is characterised by short internodes, dark green foliage, brittle stems of increased diameter, very short peduncles and petioles, increased apical dominance, reduced yield and low sensitivity to applied gibberellin (1,2). Mutants at two other loci, lka and lkb, also confer a phenotype with some similarities to the erectoides phenotype (3).

Wiatrowo line Wt 10001 has a typical erectoides phenotype except that the internodes are about three times as long as those of the Lk type line, JI 1420. Nordic Gene Bank line 6075 (.Jaranowski's pumilio dwarf) also has an erectoides phenotype and is very similar in appearance to line Wt 10001. Cross JI 1420 x Wt 10001 gave an erectoides F_1 similar in phenotype to Wt 10001. Cross JI 1420 x Hobart line 63 (dwarf, le Lk) produced a dwarf F_1 while cross Wt 10001 x Hobart line 53 (dwarf, le Lk) produced a tall (Le Lk) F_1. The F_1 plants of cross Wt 10001 x NGB 6075 were indistinguishable from the two parents. These results show that gene lk is responsible for the erectoides phenotype of Wt 10001 and NGB 6075, they confirm previous results (1) that JI 1420 has genotype le and they show that Wt 10001 has genotype Le. They also indicate that NGB 6075 probably has genotype Le but that point requires confirmation by crossing.

Recent tests by Swiecicki (4) indicate that the lk locus is on chromosome 5, probably in the gp-cri region, and that lk is the mutant gene responsible for the erectoides phenotype of Wiatrowo lines Wt 10011 and Wt 10284.

Lines NGB 6075 and Wt 10001 were kindly supplied by Drs. S. Blixt and W. K. Swiecicki, respectively.

1. Reid, J. B. 1986. Ann. Bot. 57:577-592.
2. Reid, J. B. and W. C. Potts. 1986. Physiologia Plantarum 66:417-426.
3. Reid, J. B. and J. J. Ross. 1989. Physiologia Plantarum 75:81-88.
4. Swiecicki, W. K. 1989. PNL 21:71-72.