Gene symbol for the erectoides-type, short-internode mutant Wt 11242

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The gene responsible for the short-internode phenotype of mutant line Wt11242 has now been assigned two different symbols. Recently, Święcicki and Wolko (8) designated the mutant allele *dnd* (*densinodosum*) and showed *Dnd* was located in the *M* region of linkage group III. Earlier, Kusnadi et al. (2) found the Wt11242 mutant had an erectoides-type phenotype and was allelic with the semi-erectoides mutant *lka* characterized by Reid and Ross (5). They designated the second mutant allele lka^{11242}. However, in the terminology now adopted by the Hobart pea group, the two mutant alleles would be written as *lka1-1* (type line WL5865) and *lka1-2* (type line Wt11242).

There are five loci in the erectoides series: *Lk*, *Lka*, *Lkb*, *Lkc* and *Lkd* (1, 4-6). The erectoides phenotype is characterized by short internodes, stiff stems, short peduncles and petioles, dark green leaves, some epinasty, and an absence of basal branching. In the *lka* mutants, the shorter internodes result from a reduction in both cell length and cell number (2, 5). The erectoides phenotype appears to result from impaired brassinosteroid synthesis or reception. Mutants *lk* and *lkb* are brassinosteroid deficient: the *lkb* mutation blocks conversion of 24-methylenecholesterol to campesterol (3) and *lk* blocks conversion of campesterol to campestanol (9). The *lka1-1* mutant is brassinosteroid insensitive (3). Response of mutant *lka1-2* has not been reported. The *lka1-2* mutation appears less severe than *lka1-1* (2). The plant brassinosteroid growth regulators are related to animal steroidal hormones. The pea *Lkb* gene has been sequenced and the amino acid sequence showed 60% similarity with the human homologue (7).

1. Cramp, R.E. and Reid, J.B. 1993. Plant Growth Regul. 12: 141-147.
2. Kusnadi, J., Gregory, M., Murfet, I.C., Ross, J.J. and Bourne, F. 1992. Pisum Genetics 24: 64-74.
3. Nomura, T., Kitasaka, Y., Takasuto, S., Reid, J.B., Kukami, M. and Yokota, T. 1999. Plant Physiol. 119: 1517-1526.
4. Reid, J.B. 1986. Ann. Bot. 57: 577-592.
5. Reid, J.B. and Ross, J.J. 1989. Physiol. Plant. 75: 81-88.
6. Reid, J.B., Ross, J.J. and Hasan, O. 1991. J. Plant Growth Regul. 10: 11-16.
7. Schultz, L., Kerckhoffs, H.J., Klahre, U., Yokota, T. and Reid, J.B. 2001 . Plant Mol. Biol. (in press).
8. Święcicki, W.K. and Wolko, B. 2000. Pisum Genetics 32: 48-50.
9. Yokota, T., Nomura, T., Kitasaka, Y., Takasuto, S. and Reid, J.B. 1997. Proc. Plant Growth Regul. Soc. USA 24: 99.