

MUTANTS DEFECTIVE IN SYMBIOTIC NITROGEN FIXATION

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Induced symbiosis mutants provide new tools to study the host plant contribution to symbiotic nitrogen fixation. We have described the induction of non-nodulated mutants of the pea cultivar 'Sparkle', and have designated some of the sym genes (1,2,3). Analysis of four mutants, not allelic with those previously described, indicates four additional loci.

Line E135N (sym-14) is non-nodulating, and was discovered as a segregant from the nodulating, non-fixing line E135 (sym-13) (2). A very close linkage to Fum locates sym-14 to chromosome 2.

Line E151 (sym-15) has few or no nodules, and lateral roots are shorter than those of 'Sparkle' (1). Sym-15 also maps to chromosome 2, near Amy-1.

R50 (sym-16) similarly has short laterals and few or no nodules (1). It has shortened internodes and pale leaflets. R50 was mapped to chromosome 5 near a previously mapped stubby root mutant coh. Crosses between R50 and a line homozygous for coh gave F₁ plants with normal root morphology, indicating the two mutants are probably not allelic.

R82 (sym-17) is a dwarf and has thick stubby roots with few or no nodules. R82 displayed linkage to Prx-2, an isozyme locus as yet unmapped.

1. Kneen, B.E. and T.A. LaRue. 1986. PNL 18:33.
2. Kneen, B.E. and T.A. LaRue. 1987. PNL 19:17.
3. Kneen, B.E. and T.A. LaRue. 1988. Plant Science 58:177-182.
