

Mutagenesis in *Lotus corniculatus*

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The cytological and mutagenic effects of seed treatment of *Lotus corniculatus* cv. 'Mirabel' with X-rays (3,000-12,000 Rads), ethyl methanesulfonate, 8-ethoxycaffeine, N-hydroxyurea, and 2-aminopurine (0.001 to 0.1% solutions) were assessed on 93 selfed, partially inbred, and open-pollinated lines (22,000 plants) over four generations. Mutagenic effects were assessed on germination, seedling survival, meiotic aberrations, pollen abortion, seed and forage yields, pod dehiscence, winter hardiness, brown floral keel tip color, and cyanoglycoside (HCA) content in the leaves. Dose effects were largely confined to the M₁ generation. Germination and seedling survival could not be used to predict mutation rates. Higher levels of forage and seed yields and lower levels of HCA content were induced. One line showed high forage yield and good potential for forage improvement. Pod dehiscence, winter hardiness and brown keel tip frequency were not affected. Three qualitative mutants, chlorotica, vestigial floret, and dwarf, were tetrasomic recessives. Only tetrasomically inherited characters were found. X-rays and EMS were the most effective mutagens.

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