Breeding for reduced glucosinolate content in oilseed rape

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Seeds from the parental, F_1, F_2 and first backcross generations, derived from a cross between a re-synthesized *Brassica napus* L. and the double-low *B. napus* rapeseed cultivar cv. Jaguar were analysed for progoitrin and total glucosinolate concentrations. The methods of analyses were based on liquid chromatography using two internal standards and determinations of individual intact glucosinolates by micellar electrokinetic capillary chromatography. From the ensuing genetic analysis of the results it was found that an additive/dominance model of gene action adequately explained the variation among the generation means for progoitrin concentrations whereas non-allelic interactions were implicated in the inheritance of total glucosinolate concentration. Predication based on estimates of the genetic components of both means and variances indicated that recombinant inbred lines, rather than second cycle hybrids, appeared to offer the best prospect of reducing glucosinolate levels in this material. Estimates of the minimum member of genes controlling progoitrin and total glucosinolate concentrations in the seeds were broadly in line with the number required for the know stages of their biosynthesis. The breeding implications of these results are briefly discussed.