

PRELIMINARY NOTES ON CROSSES BETWEEN PAPAVER DUBIUM L. ($2n = 42$) AND P. RHOEAS L. ($2n = 14$)

ALIE KOOPMANS

Genetisch Instituut Rijksuniversiteit Groningen, Haren (Gr.)

A number of crosses were made between *Papaver rhoeas* and *P. dubium*. Only a few data are available but they may be considered as an addition to the data given by ROGERS (1969).

Out of 246 attempted *P. rhoeas* \times *P. dubium* crosses 36 were successful, whereas out of 57 attempted reciprocal crosses 18 succeeded. The germination of the hybrid seed was somewhat better, whereas seedling mortality on the whole was lower than mentioned by Rogers.

The F_1 's were something like intermediate with regard to flower colour and capsule shape. As for leaf shape there was some difference between the reciprocal crosses. The F_1 of *P. dubium* \times *P. rhoeas* was somewhat variable, the leaves were generally wider than the F_1 of *P. rhoeas* \times *P. dubium*, which was uniform with smaller, intermediate leaves (figs. 1, 2).



Fig. 1 F_1 of *P. dubium* \times *P. rhoeas*

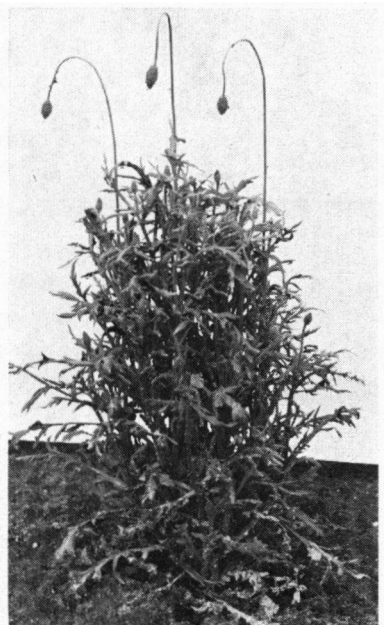


Fig. 2. F_1 of *P. rhoeas* \times *P. dubium*

Preliminary karyological observations were made on 4 F₁ plants of the cross *P. dubium* × *P. rhoeas* with the following results in metaphase I:

MI Configurations III = trivalent II = bivalent I = univalent	Number of MI configurations in 4 plants				
	no 1	no 2	no 3	no 4	total
9 II + 10 I	2	4	1		7
8 II + 12 I	5	7	3		15
7 II + 14 I	4	4	7		15
6 II + 16 I	10	2	1	1	14
1 III + 7 II + 11 I	1		6	1	8
1 III + 6 II + 13 I			2		2

From this table it follows that chromosome pairing in this F₁ is somewhat better than in the F₁ material of Rogers. As the *P. dubium* parent of these crosses originates from the surroundings of Kiel (Germany), it may be that strain differences in *P. dubium* and (or) *P. rhoeas* are the main causes of somewhat better pairing behaviour.

Rogers brought already to the fore that there is a homology between the 7 chromosomes of *P. rhoeas* and a set of chromosomes of the hexaploid *P. dubium*. The occurrence of more than 7 bivalents and occasional trivalents could be explained by structural modifications in *P. dubium* chromosomes by which they are partly homologous with *P. rhoeas* chromosomes. Also the occurrence of bridges in A I points to that view. The disjunction of univalents is irregular so that in telophase the two chromosome groups are different in chromosome number. Also the A II is irregular and results in a tetrad stage which mostly consists of 4 nuclei and a certain number of micronuclei.

I believe that these data give some support to Roger's hypothesis that *P. dubium* could be of hybrid origin; *P. dubium* may be considered then as an allohexaploid.

REFERENCE

- ROGERS, S. (1969): Studies on British Poppies. II. Some observations on hybrids between *Papaver rhoeas* L. and *P. dubium* L. *Watsonia* 7: 64-67.