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Artikel: Variation and reproductive behaviour in some Swiss populations of Leontodon hispidus L.s.l. : a preliminary report

Autor: Groot, Johannes de

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peded by hybridizations. Checks performed on both seed germination and seedling development show that, in general, seed setting percentages can be used as a good measure for fertility.

6. Effect of hybridizations on pollen fertility

Pollen development was studied on three levels: a) intraindividual variation; b) variation between the individuals of a given strain and c) variation between strains. The results of measurements are presented in table 12.

a) The differences in the percentage of a well-developed pollen between two flower heads each per individual, determined for 25 individuals, ranged from 0 to 32 %, their average being 8.2 %.

b) Variation between the individuals of a strain. Percentages of well developed pollen were determined in each 4 - 6 individuals from 25 strains. The maximal difference between these percentages per strain ranged from 0 to 97 %, its average being 27 %; this wide range of variation within a given strain indicates that pollen development can be influenced by recombination factors. It should be added that the extent of variation was similar in hybrids between various populations as well as intrapopulation crosses.

c) Variation between various strains. Average percentages of well-developed pollen for the various hybridogenous strains, the strains from intrapopulation crosses and those from selfings ranged from 76 to 99 %, from 69 to more than 99 % and from 81 to 91 %, respectively. Apparently there is no decrease in percentage of well-developed pollen in both hybrids and offspring from selfings. Clumping and translucent pollen was observed only in a single hybrid cross.

Noticeable differences in the size variation of the well-developed pollen were observed in various individuals (tables 12, 13). It is interesting to note that wide variation ranges appeared to occur more frequently

Table 13. Percentage of sound-looking pollen grains and mean values of pollen diameter with standard deviations (arbitrary units).

Parents	%	Mean Ø and stand. dev.	F_1-plants	%	Mean Ø and stand. dev.
E 13*	78	5.63 ± 0.27	E 13 x E 14	97	6.59 ± 0.46
E 14	96	7.37 ± 0.21			
	87	6.50 ± 0.24		97	6.59 ± 0.46
E 14	96	7.37 ± 0.21	E 14 x B 5b	95	6.79 ± 0.47
BOP5	99	7.32 ± 0.20	BOP5 x E 14	98	7.22 ± 0.54
	98	7.35 ± 0.33		97	7.01 ± 0.51
E 19	91	7.19 ± 0.42	E 19 x M 19	89	6.70 ± 0.88
M 19	97	7.34 ± 0.31			
	94	7.27 ± 0.37		89	6.70 ± 0.88
M 4	93	7.10 ± 0.35	M 4 x CA 4	76	6.87 ± 0.59
CA 4	>99	7.18 ± 0.17	CA 4 x M 4	93	6.52 ± 0.78
	96	7.14 ± 0.26		85	6.70 ± 0.69
M 9	98	7.30 ± 0.28	M 9 x BOP6	78	6.99 ± 0.88
BOP6		not measured			
	98	7.30 ± 0.28		78	6.99 ± 0.88
E 10*	98	5.55 ± 0.34	E 10 S_1,5	81	6.20 ± 1.05
E 13*	78	5.63 ± 0.27	E 10 S_2,1	91	6.49 ± 0.66
M 11*	>99	5.71 ± 0.43	M 11 S_1,1	81	7.16 ± 1.57
			M 11 S_2,3	90	7.12 ± 1.20
	92	5.63 ± 0.35			

* abnormally small-sized flower heads

individuals obtained from selfings and interpopulational hybridizations than those obtained from intrapopulation crosses. Small-sized pollen grains were most frequently found both in the self-compatible individuals as well as in their offspring, whereas the finds of abnormally large-sized pollen grains were mainly restricted to the latter ones. Incidentally, the lowest modal values of pollen size were observed in three individuals with small heads. Two of these were self-compatible plants (table 12).

7. Discussion

Leontodon hispidus L. s. l. is a remarkably variable taxon. The over-all picture of variation shows a wide intrapopulational variation and large interpopulational overlappings, apparently due both to genotypical as well as phenotypical factors. As a result, taxonomical treatment of the group is very difficult and some diagnostic characters that were formerly used, do not appear to be reliable.

No differentiation could be observed between the few investigated grassland populations of the Swiss Plateau, belonging to plant communities such as Molinion, Arrhenatherion and Bromion. *L. hispidus* var. *glabratus* (Koch) Bischoff is exemplary: apart from its glabrousness the taxon is not well-defined. Hairless plants corresponding to this taxon occur side by side with hairy individuals. The long, dentate leaves, which characterized the investigated material, tended to lose their typical shape under culture conditions. Some more characters, e.g. hair density and hair length occured in haired grassland populations. However, the range of variation within the grassland samples was so wide that large overlappings occurred between them. Slight interpopulational, possibly geographical, differentiation was observed only in modal ray number of hairs.

More distinct interpopulational differentiation was found in the thickness of leaves. Differences between both wild and cultivated samples corresponded to the *L. hyoseroides* samples on the one hand (thick leaves)