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Studies on interspecific hybrids within the genus Brassica have been carried out in our Institute for many years. At the beginning the traditional method of making crosses between plants by hand pollination and seed development in pods was used, but the amount of seeds obtained was very small in this case (Grabiec, 1967; Olsson, 1960). At present the isolation of hybrid embryos followed by in vitro culture is applied to obtain a better yield of hybrid plants.

The main aim of our work is to increase variability within the genus Brassica and to produce new species which does not occur in nature.

Plant material: B.carinata form 1 annua
 /BBCC/ form 2

B.campestris form I biennis
/AA/ form II

All combinations of crossings between two forms of B. carinata and two forms of B. campestris were made in greenhouse and field conditions. After three weeks embryos in different phases /globular, heart, torpedo/ were isolated and transferred on Gamborg's B-5 medium with 10% saccharose, 50 mg L-Serine, 400 mg L-Glutamine and 50 mg m-Inositol. Further growth and development of roots were obtained two weeks later by transferring on Gamborg's medium B-5 with 3% saccharose. The plantlets were transferred to pots with soil. Obtained sterile hybrids were treated with 0.05% colchicine plus 1.5% DMSO.

Results

N ^o	Cross combination	Number of embryos	
		greenhouse	field
1	B.carinata/1/ x B.campestris/I/	4	32
2	B.carinata/2/ x B.campestris/I/	10	49
3	B.carinata/1/ x B.campestris/II/	113	15
4	B.carinata/2/ x B.campestris/II/	37	99
5	B.campestris/I/ x B.carinata/1/	1	259
6	B.campestris/I/ x B.carinata/2/	41	69
7	B.campestris/II/ x B.carinata/1/	16	105
8	B.campestris/II/ x B.carinata/1/	3	-
	number of embryos	225	624
	number of hybrid plants	31	120
	per cent of hybrid plants	13,7	19,2

Conclusions

1. In vitro culture of hybrid embryos is an effective method to obtain B.campestris x B.carinata hybrid plants.
2. Percentage of hybrid plants obtained from field crosses was higher than from crosses made in a greenhouse.

R e f e r e n c e s

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