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HAPLOID AND DOUBLED HAPLOID PLANTS OBTENTION ON SUNFLOWER (*Helianthus annuus L.*) BY IN VITRO GYNOGENESIS.

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Haplodiploidisation may be considered as a good tool for sunflower breeding schemes, in order to obtain homozygous plants.Due to the results observed from gynogenesis on many Compositae (San & Gélébart, 1987), unfertilized ovaries and ovules cultures has been chosen.
Mother-plants are grown in greenhouse during winter, and in field during summer.Unopened florets are collected when embryo sac is differenciated (i.e. with 2 synergids, 1 egg cell, 1 central cell with fusion polar nucleus, 2 antipodals). Florets at the right stage for gynogenesis must be higher than their floral bract.
Ovaries are cultured on a Murashige & Skoog (1962) basal medium with 2 mg/l of NAA and 10 % sucrose (Gélébart & San, 1987), at 29°C in darkness during one week. Ovaries are placed on medium in the same way they are on the capitulum. After this period, ovules are dissected from ovaries and cultured on the same medium, in the same conditions, for 3 more weeks.
Then ovules are dissected, in order to extract gynogenetic embryos, mainly issuing from egg cell. These haploid embryos are cultured on a Murashige & Skoog (1962) basal medium with 2 % sucrose, Fujii (1971) vitamins at half strength, without any growth regulator, at 26°C, 16 hours light and 1500 lux. Two weeks later, young plantlets may be transferred in peat.
This gynogenesis standard protocol was tested on 38 genotypes. 35 gave gynogenetic embryos, and 29 regenerated plants. Among plants, 85 % stay haploid, 10 % may show some diploid cells, and 5 % are spontaneously doubled.
Results obtained on so many genotypes are very interesting, but achievment of an efficient chromosomal doubling technique is still the major problem before including gynogenesis in breeding schemes.

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