

IMPORTANCE OF DOUBLED HAPLOIDS IN SUMMER SQUASH

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Doubled haploidy technology (DH) is the fastest and the easiest way for inducing homozygosity in plants and it is extremely useful in rapidly fixing traits in bright lines and making more efficient horticultural hybrid breeding. The aim of this work was to investigate the main factors affecting production of plants from anther and ovule cultures in summer squash (*Cucurbita pepo* spp. *pepo*). Four varieties were considered: ISI_1 F1, ISI_2 F1, ISI_3 F1, ISI_4 F1. Seeds were sown in pots during the 2018 winter season in order to obtain male (for androgenesis) and female (for gynogenesis) flower buds. For androgenesis, male buds having a length of 9–10 mm and containing anthers with mid or late uninucleate microspores were collected in the morning and exposed to cold temperature pretreatment at 4°C for 4 days. Later on, buds were disinfected with alcohol and bleach, cut and transferred in MS media with two different concentration of 2,4-D and sucrose. After 4 weeks, buds were relocated in MS added with NAA, and then in MS added with kinetin. The same procedure was adopted for the gynogenesis approach by using ovary culture with identical media. Promising results have been obtained thanks to this preliminary study: most of the callus (80% from androgenesis and 60% from gynogenesis) already showed shoot tips (with 2–3 nodes) and roots. After colchicine treatment, the ploidy of the plants will be checked by flow cytometry and then they will be transferred into normal containers for the acclimatisation process before being transplanted in open field.