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BIOTECHNOLOGICAL STUDIES ON INTERSPECIFIC CROSSES AMONG SOME *CUCURBITA* SPECIES.

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ABSTRACT

Crosses were made between eight different genotypes which belong to different species of genus *Cucurbita*. It was observed that young fruit sets obtained from the interspecific crosses Green Striped Cushaw (*C. argyrosperma*) X Eskandarani (*C. pepo*), Butter Nut (*C. maxima*) X Arizona Synthetic No.1 (*C. foetidissima*), Eskandarani (*C. pepo*) X Arizona Synthetic No.1 (*C. foetidissima*), and Eskandarani (*C. pepo*) X Green Hubbard (*C. maxima*), began to desiccate 7 to 10 days after pollination, which could be due to embryo abortion. In addition, the interspecific crosses Eskandarani (*C. pepo*) X Pink Banana (*C. maxima*) and Eskandarani (*C. pepo*) X Green Striped Cushaw (*C. argyrosperma*) gave mature fruits. However, the dry seeds inside these fruits contained mature embryos and rudimentary or undeveloped cotyledons. Embryo culture technique was employed to rescue such embryos. Significant differences among immature hybrid embryos of the interspecific crosses concerning weight of immature embryos 30 days after culture, and percentages of callus formation, shooting, rooting, chlorophyll formation, browning, and survival were observed. The physical state of the culture medium had a significant effect on callus formed by the cultured immature hybrid embryos of the cross Eskandarani (*C. pepo*) X Green Hubbard (*C. maxima*). The genotype of the cultured hybrid embryos excised from the dry seeds which contained mature embryos and undeveloped cotyledons, had significant effects on the different aspects of embryo culture. A successful protocol for acclimatization of plantlets resulted from culture of the interspecific hybrid embryos of the cross Eskandarani (*C. pepo*) X Green Striped Cushaw (*C. argyrosperma*) was used. Esterase isozyme analysis using polyacrylamide gel electrophoresis indicated that the resulted banding patterns were efficient in distinguishing the plants of the interspecific F₁ hybrid Eskandarani (*C. pepo*) X Green Striped Cushaw (*C. argyrosperma*), from the plants of the related parental genotypes.