NEW HYBRIDS FROM INCOMPATIBLE CROSSES IN DATURA THROUGH CULTURE OF EXCISED EMBRYOS ON MALT MEDIA

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Increasingly of recent years it is becoming possible to control the activities of the living plant by chemical treatment. The success in doubling chromosomal numbers with colchicine and other stimuli naturally led to an attempt to halve the chromosomal number by some similarly simple treatment. The fact that over two hundred haploids (1n) had turned up spontaneously in our cultures of Daturas since 1921 showed that the plant is capable of producing individuals with half the normal 2n chromosomal complement. Preliminary attempts to induce the production of 1n offspring by treating the unfertilized egg cells with a wide series of stimuli were entirely unsuccessful. In the summer of 1940 the cooperation of Drs. J. van Overbeek and Marie Conklin was secured in a more intensive attack on the problem. Something was learned about the processes involved in embryo development, but none of the stimuli tested induced the production of 1n embryos. In the summer of 1941 they attacked the problem from a different standpoint in order to learn more about the factors involved in embryo development and attempted to dig out the young embryos and cultivate them on artificial media. The older embryos could be thus readily cultivated, but the smaller ones (under 0.5 mm in D. stramonium) could not.