

THE INDUCTION OF POLYPLOIDY IN *VINCA ROSEA* L.

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Colchicine in seed and meristem treatments of *Vinca rosea* L., commonly known as periwinkle, was used to produce a new plant variety having much larger flowers than the form now in use in Oklahoma gardens.

Approximately 500 seeds of both the red and the white varieties were soaked in 0.01% and 0.1% colchicine solutions for twenty-four and forty-eight hour intervals. Viability and germination of the seedlings in the higher concentration were remarkably reduced. One hundred and fifty seedlings, most obviously affected, were selected for potting. These seedlings showed marked thickening of the hypocotyl, with occasional branching of the stem, delayed root formation, and roughened distorted leaves resulting from the difference in growth rate of the diploid and polyploid tissue present.

Since colchicine causes a change in the chromosomal number only in the case of actively dividing cells, the percentage of change in seeds is relatively small, resulting in a low percentage of total polyploidy in the mature individuals. There is also a marked delay in growth and lateness in blooming of the treated plants. As indicated by large stomata and pollen grains, considered to be reliable criteria by Blakeslee and Warmke (1938), 2.6% polyploidy was obtained by seed treatment. The writer to date has been unable to obtain chromosomal counts of the pollen mother cell stage.

Meristem treatment with colchicine (10 mg. in 10 gm. lanolin paste, and 0.1% colchicine in oil emulsion) produced approximately 50% polyploidy in a limited number of plants. Polyploid plants exhibited larger stomata, larger pollen grains, larger seeds, thicker stems, thicker greener leaves, and much larger flowers than normal diploid plants.

These characteristics, combined with the natural drought resistance of the species, should make *Vinca rosea* L. even more desirable for bed and border planting in the gardens of the Southwest.

LITERATURE CITED

Blakeslee, A. F. and H. E. Warmke, 1938. Size of seed and other criteria of polyploids. *Science* 88:440.