

## THE EFFECTS OF CERTAIN HORMONES, DRUGS, AMINO ACIDS, AND VITAMINS ON MITOSIS IN THE POLLEN TUBE OF *TRADESCANTIA OCCIDENTALIS*\*

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The technique of pollen tube culture (Eigsti, 1940) was used to test the effectiveness of this method for studies concerning the influence of certain organic substances upon mitotic phenomena in the pollen tube. The specific substances\*\* used were: anterior pituitary extract, estrogenic hormone, gonadotropic hormone, adrenalin, thyroid, thymus, prolactin, heteroauxin, riboflavin, ascorbic acid, nicotinic acid, vitamin B<sub>1</sub> (thiamin), tyrosine, tryptophane, alanine, cystine, atropine, colchicine, sulfapyridine, and sulfanilamide.

Each specific substance was added to a sucrose-agar medium used for growing the pollen. The concentrations varied as follows: 1:100, 1:1000, 1:10,000, 1:100,000, and 1:1,000,000. After the pollen had been added, the slides were placed in a moist germinating chamber kept at 26°C. Variability of pollen in different flowers was avoided by using pollen of a single flower for each test series. Division of the generative cell occurred in the control preparation four hours after the pollen had been added. One-half the slides of each test were fixed after four hours, and the remainder after eight hours. A record of the pH values was made for each solution used.

Comparative studies of the control with the treated material showed that each substance tested influenced mitotic phenomena in the pollen tube in one or more concentrations. Irregularities in mitosis were found on slides of the four- and eight-hour preparations in a number of different substances used, viz., colchicine, tryptophane, sulfanilamide, sulfapyridine, adrenalin, and prolactin.

This method is useful for studies of the effect of such substances as hormones, drugs, amino acids, and vitamins upon mitotic phenomena.

### LITERATURE CITED

Eigsti, O. J., 1940. Methods for growing pollen tubes for physiological and cytological studies. *Proc. Okla. Acad. Sci.* 20: 45-47.

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