Comments and Communications

Auxin and Flower Initiation

The recent note by Green and Fuller (*Science,* October 15, pp. 415–416) on the delay of flowering in petunias by treatment with auxin solutions raises the question as to whether such effects are specifically exerted on flower initiation. It has been known for some years that auxin does inhibit bud development, and this is presumably true for floral as well as for vegetative buds. It would seem that the controls for such experiments should perhaps be not the untreated plants but the vegetative buds of treated plants. This would enable any specific effect of auxin on flowering to be distinguished from general bud inhibition.

In our own experiments with barley, which are being reported elsewhere (*Amer. J. Bot.,* in press), auxin treatments had an inhibitory effect on the vegetative buds. In addition, however, it is of interest that low concentrations, which produced such a vegetative inhibition, definitely increased the number of flower primordia in flowering plants. High concentrations reduced the number of flower primordia. This suggests a parallelism with the known effect of auxins in promoting flowering in the pineapple (H. E. Clark and K. R. Kerns. *Science,* May 22, 1942, pp. 536–537, and other later workers).

TABLE 1

EFFECT OF INDOLE ACETIC ACID ON FLOWER INITIATION OF BARLEY

Treatment	Flower primordia per plant	Per cent of controls
Water control	26.4 ± 1.3	...
10^{-5}M IAA	30.0 ± 3.3	114
10^{-4}M IAA	34.3 ± 1.7	130
10^{-3}M IAA	25.4 ± 1.7	96

Variability is expressed as standard deviation of the mean.

Wintex barley plants, which require long days for flowering, were grown for 3 weeks in a 10-hr day and then transferred to a 16-hr day. Groups of 10 plants were treated with solutions of indole acetic or naphthalene acetic acid, ranging in concentration from 0.01 to 400 mg/liter. Each plant was given 1 ml of solution by infiltration through cut leaf tips. Three weeks after treatment the plants were dissected, and the flower primordia were counted and compared with the water controls.

The results with indole acetic acid are presented in Table 1. It will be seen that application of the 10^{-4} molar concentration increased the number of flower primordia 30% over that of the water control. The 10^{-5} molar solution had a less pronounced effect. Naphthalene acetic acid produced similar results. At concentrations below 10 mg/liter, the number of flower primordia was increased. At 10 mg/liter and above, the number was decreased, the decrease being approximately proportional to the logarithm of the auxin concentration. The latter inhibition is similar to that reported by Thurlow and Bonner for *Xanthium* (*Amer. J. Bot.,* 1947, 34, 603) and by Green and Fuller (*loc. cit.*). The ability of low concentrations of auxin to increase the number of flower primordia, however, indicates that auxins may not be acting simply in opposition to flowering.

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A Note on the Fungicidal Property of Actidione

In a significant article by Kornfeld and Jones (*Science,* October 12, pp. 437–438) concerning the chemical structure of Actidione, a new antibiotic substance, the comment is made that "this interesting material is highly active against almost all yeasts but is relatively innocu ous to other microorganisms."

Interest in this material will be heightened by the discovery by Drs. I. M. Felber and C. L. Hamner, now in press, that Actidione is effective against powdery mildew in concentrations of 5 ppm. There are suggestions that Actidione may be effective against other fungi as well. This is an instance of an antibiotic substance derived from a fungus which is effective against a plant microorganism.

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Propagation of *Metasequoia* by Juvenile Cuttings

A note pertaining to the propagation of *Metasequoia glyptostroboides* should be interesting to those who have read of the recent discovery of living trees of *Metasequoia* (H. H. Hu. *J. N. Y. bot. Gard.,* 1948, 49, 201–207; G. L. Stebbins. *Science,* July 30, pp. 95–98) and especially to those who have received some of the seed distributed by Dr. Merrill, of Harvard University.

While the use of juvenile cuttings is not new, there have been few opportunities when this method could be used extensively. However, where so many people have a supply of only seedlings of *Metasequoia,* this method is well adapted for rapidly increasing the number of plants available for testing and distribution.

Seed received by the Division of Plant Exploration and Introduction was sent in May 1948 to the U. S. Plant Introduction Garden, Glenn Dale, Maryland, where it was immediately sown. The resultant seedlings were then potted and grown in the greenhouse. In September a limited number of cuttings were made from the young, lateral shoots of these 5-month-old plants. These cuttings were handled in a routine fashion; that is, the basal leaves were stripped from the stems and the cuttings inserted into a bed of moist sand. Because the stems of these cuttings were very delicate, care in removing the leaves and inserting them in the sand was necessary.