A little of the veil from the pileus is placed in sterile water and macerated to break the chains of cells. This is done in a test-tube, used as a mortar, with a glass pestle ground to fit exactly inside the test-tube. The suspension of cells is then sown on complete medium[1] and incubated for about 18 h at 37° C. The cells may germinate from one or both ends to produce monokaryotic or dikaryotic hyphæ. By isolating monokaryotic hyphæ at this stage it is possible to recover monokaryons with the parental nuclear types.

Fig. 2 shows two germinating veil cells from the fruit body of a dikaryon between a haploid strain carrying a recessive morphological mutation 'dendroid' and a disomic strain with the wild-type allele. The dendroid gene was not on the duplicated chromosome. One veil cell has produced only dendroid growth, which must be a monokaryon with nuclei derived from the dendroid parent, and the second has produced some dendroid and some normal growth. Such normal growth has been isolated and those isolates which gave rise to monokaryon of the normal morphological type carry nuclei derived only from the disomic parent. These monokaryons have been tested and found to be disomic, demonstrating the persistence of the disomy in the fruit body. In other cases they have been found to be haploid, demonstrating the loss of the extra chromosome at some stage between the formation of the dikaryon and fruit-body production.

John W. Cowan

Botany Department,
University College, London,
Gower Street,
London, W.C.1.

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SOIL SCIENCE

Stability of Granular Dicalcium Phosphate Dihydrate in Soil

Bouldin and Sample[1] considered that the dissolution of dicalcium phosphate in soil was a diffusion-controlled process, and consequently the rate of dissolution would depend on the surface area of the particular sample. Since diffusion is a slow process, granules of dicalcium phosphate may remain in soil for a considerable period after application. Thus these workers observed on numerous occasions that granules of dicalcium phosphate did not dissolve completely after 3–6 months in cropped soil.

Granular dicalcium phosphate dihydrate (2–3 mm diameter) was included in an experiment at this establishment in which the influence of various periods of soil/fertilizer contact on phosphate availability was examined on five different soils. The dicalcium phosphate was mixed with each soil (2 g of granules per 4 kg of soil) 37, 26, 15 and 4 months before examination. The mixtures were stored in the open in 8-in. clay pots, buried up to their rims in sand. At each time of addition of phosphate, the soil within every pot of all treatments was thoroughly mixed. At the end of the storage period approximately 400 g of each soil/phosphate mixture was examined and any remaining white granules removed and their total weight recorded. The results expressed as percentage recovery of dicalcium phosphate are given in Table 1.

Table 1. Percentage Recovery of Granular Dicalcium Phosphate Dihydrate after Various Periods of Soil Contact*

Soil texture†	*p*H	Period of contact (months) 4	15	26	37
(1) Sand	4·7	70	40	0	0
(2) Sandy clay loam	6·5	55	10	10‡	0
(3) Calcareous loamy sand	7·1	55	20	15	0
(4) Humose clay loam	5·7	35	10	0	0
(5) Sandy clay loam	5·0	95	30	20	0

* Mean of two replicates.
† U.S. Department of Agriculture grades.
‡ One replicate only.

To check whether these granules had changed in composition during the period of contact with the soil, X-ray powder diffraction patterns were obtained (using a Nonius 'Guinier' focusing powder camera) for each sample of fertilizer residue. These showed that every sample contained pure dicalcium phosphate dihydrate; no other constituent was detected. Hence in three out of the five soils examined, undissolved dicalcium phosphate granules may remain chemically unchanged, after as much as 26 months contact with the soil.

The percentage of the added phosphate taken up by a crop of barley (phosphate uptake from the phosphate treated soil minus that from the untreated soil) grown on the soils to which the granules had just been added was 4·5, 6·2, 5·8, 3·3 and 0·3 respectively for soils Nos. 1–5. This compares well with the figures for percentage recovery after 4 months soil contact. An exception is soil 4, in which the texture and a dark colour combined to make recovery of intact granules difficult because of staining.

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S. Larsen
D. Gunary
J. R. Devine

Fisons Fertilizers, Ltd.,
Levington Research Station,
Ipswich, Suffolk.

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VIROLOGY

A Rich Source of Mouse Interferon

Considerably the richest source of mouse interferon, out of seven tested, has been found to be the brains of mice infected with the arbovirus West Nile (WN)[1]. The amounts of interferon present in one such brain are large enough to protect two or three other mice against a systemic infection with a large dose of an encephalitis virus[2]. The preparation of such mouse interferon and its properties are here described.

WN virus was obtained from Dr. J. S. Porterfield, Mill Hill, London. The strains of mice used[1] and the method for assaying interferon by quantitative hæmadsorption[3] have been described elsewhere. Interferon titres were standardized in terms of a reference preparation titrated in parallel[1].

Mice were infected intra-cerebrally with WN virus, and their brains were collected 3 or 4 days later. The brains were blended in Hanks's saline, using 2 ml. per brain, and the resultant extracts were twice centrifuged at 44,000*g* for 120 min to sediment virus particles. The top two-thirds of the supernatant from the second centrifugation constituted the interferon preparation.

In a typical experiment, the first centrifugation reduced the content of infective virus in the supernatant to 0·11 per cent of the initial level. The interfering activity of the re-suspended pellet was only 0·35 per cent of that of the final interferon preparation, and thus probably due to contamination with the interferon-containing supernatant. No infective virus could be detected in the final preparation, either directly or after blind passage, by inoculating