

TABLE IV

A		B				
Per cent. of Groundnut oil B. R. Reading .. 55-5		Turbidity temperature of the oil mixture containing the percentage of groundnut oil shown in column A and the oil mentioned below to make up the balance				
T.T.		Coconut B.R. 35-5	Niger seed B.R. 63-0	Safflower B.R. 66-0	Almond B.R. 57-0	Olive B.R. 55-4
Pure oil, 38—38-5		12—13	22-5—25	12—14	1—2	13—14
Gr. 10%		16-0	26-0	18-5	15-0	17-5
" 20%		21-0	28-0	22-5	20-0	21-0
" 30%		21-0	29-5	27-0	25-0	24-0
" 40%		27-5	31-0	32-0	28-0	27-0
" 50%		30-5	32-5	32-0	30-5	30-0
" 60%		32-5	34-0	33-5	32-5	32-0
" 70%		34-5	35-5	35-0	34-5	34-0
" 80%		36-5	36-5	36-5	36-0	36-0
" 90%		37-5	37-5	37-5	37-5	37-5

tures of any two oils mixed in definite proportion.

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tubes were no more viable. For these trials the following fungi were used:

1. Fryer and Weston, *Analyst*, 1918, 43, 4-20.
2. —, *Technical Handbook of Oils, Fats and Waxes*, 2, 302-303.
3. Evers, *Analyst*, 1912, 37, 487.
4. Hawley, H. *Curr. Sci.*, 1937, 640; Desai, C. M., and Patel, A. H., *Ibid.*, 1945, 37, 130; Narayanier, S., *Ibid.*, 1945, 177.

A METHOD OF SEALING TUBES OF FUNGAL CULTURES TO INCREASE THEIR LONGEVITY

MAINTENANCE of fungi on nutrient media involves frequent transfers, as the medium soon loses its water contents and becomes dry, especially under the dry and hot climatic conditions of Delhi. Several attempts were made to modify the standard method so as to check the quick-drying of the nutrient agar medium and thus to reduce the frequency of sub-culturing. It was realised that if the mouth of the culture tube were closed some other way than by the usual cotton-wool plug so that the hot and dry atmosphere of the room in which the cultures are stored did not affect the agar medium inside the tube it would remain moist for a longer period. A substitute was ultimately found in a combination of cellophane and paraffin wax. The fungi in culture tubes thus sealed have been found to remain viable for at least eight months (Fig. 3), and the transfers made grew true to type. The growth of the fungus in sealed tube was seen to have been checked but when at the end of eight months the seal was replaced by the usual sterilised cotton-wool plug the fungus resumed its growth. In parallel sets of cultures maintained in tubes either plugged with cotton-wool or sealed with cellophane the media had completely dried and had become brittle and membranous (Figs. 1, 2), the fungi in these



FIGS. 1-3. Cultures of *Polystictus hirsutus* (Wulf) Fr. subcultured on 19-3-46 on Potato Dextrose agar; photographed on 19-11-46.

FIG. 1. Culture tube plugged with cotton wool.

FIG. 2. Culture tube sealed with cellophane.

FIG. 3. Culture tube sealed with cellophane and paraffin wax.

Macrophomina phaseoli (Moulb.) Ashby, *Penicillium notatum* Westl., *Melonopsichium eleusinis* Mundkur and Thirumalachar, *Saccharomyces cerevisiae* Hansen, *Trichoderma viride* Pers. ex Fr., *Polystictus hirsutus* (Wulf.) Fr., *Fusarium fructigenum* Fr., *Alternaria solani* (Ell. et Mart.) J. et Gr.

For this method of sealing pieces of cellophane are cut to the required size; they should be big enough to go over the mouth of the culture tube and to cover a part of the wall of the tube. They are sterilized with alcohol and stored in sterilized petri-dishes. For fixing these pieces to the tube a water solution of 15 per cent. gelatine and two per cent. copper sulphate is used. This solution is kept in a covered container like a petri-dish. The required sub-culture is made in the usual way on a standard medium like P.D.A. and the tube is plugged with cotton-wool; when the culture is well-grown in about a week's time the cotton-wool plug is removed under aseptic conditions, the mouth of the tube is immediately dipped for a few seconds in the gelatine solution. The mouth of the tube is then placed vertically on a piece of sterilized cellophane paper; the free ends of the cellophane are then pressed down the sides of the tube; when the gelatine has set a good seal has been formed; the mouth of the tube is then dipped into hot melted paraffin so that the cellophane paper is covered with wax; the whole process of sealing the tube in this way can be performed in fifteen seconds.

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A CASE OF POLYEMBRYONY IN *POIVREA COCCINEA* DC.

(=*Combretum coccineum* Lamk.)

THE development of the embryo of *Poivrea coccinea* has been found to take place according to the Asterad type. Usually only one embryo

is developed in each ovule. In a single case, however, two embryos have been found to be formed (Fig. 1). One of the embryos is developed from the fertilised egg. The other one is near it. Judging from the position it is possible that it is developed from either one of the synergids or from a cell of the nucellus

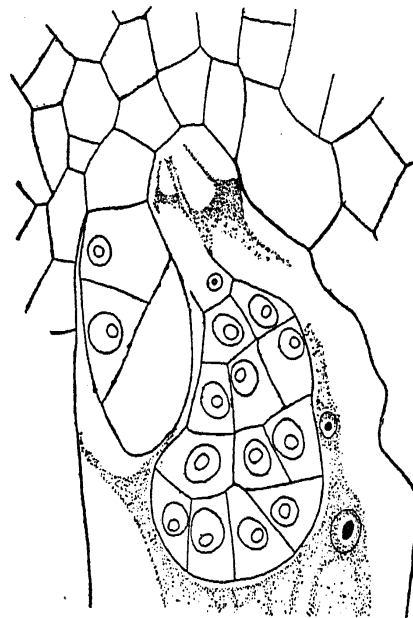


FIG. 1. *Poivrea coccinea*. L. S. of the micropylar part of the embryo-sac with the nucellar cells above it showing two embryos in the embryo-sac, $\times 215$.

abutting on the micropylar end of the embryo-sac. In this plant, however, the synergids are observed to persist until a late stage of the development of the proembryo. The apical parts of the synergids are clearly seen in the preparation (Fig. 1). Hence the extra embryo seems to have been developed from a nucellar cell.

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SYNTHETIC PENICILLIN

THE announcement that American research workers have recently isolated a specimen of synthetic penicillin has led to reports that synthetic penicillin, will very shortly be cheaply and plentifully available. Such reports are, however, based on a misunderstanding of the nature of the synthesis achieved. The work has been done by Dr. Vincent du Vigneaud and his research team at the Cornell University Medical School, New York, and is described in *Science* (Vol. 104, 1946, pp. 431-33). They found that the product of reaction between two decomposition products of penicillin-*d*-penicillamine and 2-benzyl-4-methoxymethelene-5 (4)-oxazolone possessed slight antibacterial activity. Assay showed, however, that the yield of penicillin was less than 0.1 per cent. A similar result was recorded by Oxford workers in 1942; they demonstrated that the activity of the product was due to penicillin by inactivating it with the highly selective enzyme, penicillinase. In view of the very low yield, how-

ever, the reaction was not further investigated at Oxford.

Starting with this very impure reaction product, du Vigneaud and his colleagues obtained, by a laborious extraction process, about 8 milligrammes of crystalline synthetic penicillin G. The course of the reaction and purification was followed by replacing some of the ordinary sulphur atoms in the penicillamine by a radioactive sulphur isotope which could be detected by Geiger counters. The work is of considerable theoretical interest and a fine example of skilful chemical research, but it is of no commercial importance because the starting materials themselves are difficult and costly to synthesise, the yield is tiny and the purification process very time-consuming. Difficult though it is, however, the method may be valuable for preparing, for experimental purposes, varieties of penicillin other than those known to be produced by the mould.

—(Courtesy of *Discovery*, 8, No. 2, Feb. 1947.)