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Brief comments on heterocaryosis and crossing methods

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Abstract

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Heterocaryosis methods. We used to use Petri plates containing a minimal sorbose medium on which 25 tests could be conducted simultaneously. This method has very largely been superseded by

the use of tests done in 4" test tubes closed with Oxoid Caps. Both are described in Catcheside 1960 Proc. Roy. Soc. London B153:179; more detail of the plate tests is given in Ahmad and Catcheside 1960 Heredity 15:55. For the tests in tubes we use baskets holding 64 tubes in 8 rows of 8 each. Each basket is labelled in a standard fashion with a code number corresponding to the protocol of the matrix to be set up. Drops of conidial suspension are added to each by means of Pasteur pipettes. The medium contains agar, not sloped, so that the conidial mixture sits on the top and is easily visible on inspection. Daily records are kept on record sheets, for up to 10 to 14 days. Beyond this time the medium tends to dry out too much, so concentrating the constituents. The concentration of the medium, as well as other factors such as the temperature of incubation, affects the ability to grow.

Crossing methods. We use the standard Westergaard and Mitchell formula in 6" tubes. A piece of folded filter paper is inserted into the medium, which contains agar and is sloped. The female parent is allowed to grow first and when abundant protoperithecia are seen to have been formed, the conidial parent is added. For conidiation, quite dense suspensions of conidia are made in 2 ml. of sterile distilled water and this suspension is then added to the slopes containing the female parent, after clearing out any excessive conidial growth that there may be. The tube is rotated between the hands to distribute the conidia and, after a time, the excess liquid is decanted. - - - Department of Genetics, John Curtin School of Medical Research, Australian National University, Canberra, A. C. T., Australia.