A useful gel medium for Neurospora

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This note describes a useful gel medium for Neurospora with properties superior to agar-gel medium in several respects. An important property of the gel is cold-solubility which permits gentle removal of a mycelium from all types of culture vessels. Here, specific application to race tubes is described. Other merits of the gel medium will be noted.

A block copolymer of polyoxypropylene-polyoxyethylene is available under the trade name Pluronic\ F 127 Prill from BASF Corporation, Chem. Div., 100 Cherry Hill Road, Parsippany, NJ 07054. Free 100 g samples are available and no less than 40 lb. drums may be purchased. The polymer gels above 18°C and dissolves at 10°C or below. The manufacturer reports that the material is non-toxic to rats and rabbits and negative in the Ames Salmonella mutagen assays. Commercially, it is used in cold-water detergent cleansers.

A suspension of 20% w/v of the polymer is dissolved in Vogel's minimal medium containing 2% sucrose by stirring it magnetically overnight at 10°C. (Concentrations less than 20% form unsuitably soft gels or viscous solutions above 18°C.) The solution is sterilized by autoclaving it 15 min at 136°C. The gel is melted by setting it at 10°C for 4-8 h or overnight. (The time to melt is a function of the rate of cooling which, in turn, is a function of the solution volume.) The solution is dispensed to culture vessels at room temperature where it quickly gels.

The steady-state extensional growth rates of Oak Ridge wild type in race tubes on the gel medium at 22 or 35°C are essentially the same as those on 2% purified agar (Difco, Detroit, MI) medium. The long ribbon of mycelium may be removed from a race tube by chilling it to 10°C and decanting the contents.

The yield of conidia by a wild type strain on slants of the gel was as good as that on purified agar. Comparative measurements of mycelial and conidial yields on slants of the gel medium should be feasible.

The gel provides an alternative to purified agar for nutritionally-exacting experiments. Unlike agar gels, the gel is highly translucent: a property that may be of merit for microscopic or photometric observations of the mycelium in situ. Comparing 20% synthetic and 2% agar gels, the polymer's cost is one half that of purified agar and equal to that of standard agar. - - - This research was supported by funds from the Laboratory of Molecular Biology. Contribution no. 3110 from the Department of Genetics.