

How to make tapered platinum-iridium needles and use them for isolating ascospores.

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Background

In the 1940s, G. W. Beadle provided students with transfer tools made of platinum wire that had been flattened, pointed at the end, and set in aluminum holders. Later, when random ascospores came into wide use and replaced ascus analysis for most purposes, a modified version of these platinum needles was found to be ideal for isolating single spores or germlings by picking them up on a piece of the underlying agar (Perkins 1959). The same flattened needles were found to be useful also for isolating shot asci and their constituent spores (e.g., Perkins 1962).

Procedure

Preparation. A 45 mm long piece of platinum-iridium wire is fastened into an 8.5 cm needle-holder. The distal 4 or 5 mm of the wire is hammered until it becomes spatula-shaped and flattened, tapering into a very thin end. (The head of another hammer can serve as an anvil.) Sharp scissors are then used to trim the spatulate portion into an acute-angled sharp-tipped blade with a taper of perhaps 35 degrees. The blade should be thin enough so that after being flamed it cools in a few seconds to a temperature that does not melt the agar.

Platinum-iridium alloy is preferred to pure platinum, which bends and breaks easily because it is too soft. Platinum-iridium wire (70%:30%), 0.5 mm diameter (0.02 in), is available from Aldrich (Catalog No. 35,738-3). (Longer pieces of the same wire in longer needle holders are excellent for ordinary inoculations and transfers.) Ten percent iridium-platinum wire of the same diameter is available from VWR (Catalog No. 66262-405). This alloy may be satisfactory for ascospore-isolation needles, but it has not been tried.

If the blade becomes bent, fingers can often be used to straighten it and adjust the angle. If it is seriously damaged, repair may require using the hammer and anvil.

For use of the platinum needles in isolating random ascospores, see *How to obtain progeny as random ascospore isolates*. For use in isolating shot unordered asci and their constituent spores, see *How to obtain asci as unordered groups of ascospores ejected from the perithecium*.

References

Perkins, D. D. 1959. New markers and multiple point linkage data in *Neurospora*. *Genetics* 44: 1185-1208.

Perkins, D. D. 1962. Crossing-over and interference in a multiply marked chromosome arm of *Neurospora*. *Genetics* 47: 1253-1274.

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