

One gel, 7 mm. thick, is easily cut into three slices which means three isozyme systems can be examined from a single fly. Since evaporation is fairly slow from the depressions there is ample time for inserting three 2 mm. x 7 mm. filter papers rather than the single larger size paper, which triples the potential number of isozyme systems that can be examined from a single fly, with very little additional effort. A further increase can be realized by double staining.

Bennett, J. and S. Mittler. Northern Illinois University, DeKalb. Plastic Plugs for shell vials.

Polyurethane foam plugs have been used in shell vials here since the fall of 1962. Others (DIS 37) have reported using polyurethane plugs in bottles, however the commercially available sizes do not fit

well in the 25 x 95 mm shell vials used here. Extensive correspondence with the supplier failed to elicit an appropriate size for vials. We have developed our own equipment for making the plugs and describe it here.

The basic tool is the male portion of a Greenlee, type 730, 1 1/16 inch (27 mm) diameter, #AV1763 radio chassis punch (such as Newark Electronics Corp., 223 W. Madison St., Chicago, Ill. 60606, Catalog #33F765 @ \$2.70). The female portion is too large (designed for cutting metal) and must be discarded. A large arbor press (Greenerd Arbor Press, Nashua, New Hampshire, No. 3, S 31) was obtained from a federal surplus depot for schools for \$35 (new value probably over \$300). A local machine shop prepared an appropriate foot plate with a hardened, centerable insert (reworked from a Timken #15101 bearing race) machined to a finger tight fit with the male part of the punch. When installed in the press, Fig. 1., this provided a strong and reliable punching system for manufacturing plugs.

The plugs are cut from 1 1/2" x 18" (3.8 x 45.8 cm) cross section strips of foam, sold for upholstery at hardware stores, or from 2" (5.08 cm) thick strips from Montgomery Ward, Chicago, Illinois (Catalog #71B6070L, @ \$0.66/linear foot (30.5 cm)). Care must be exercised in cutting to avoid overlapping a previous cut. This produces flat sides on the plugs and may result in escape of flies. The perforated strips of foam that are left over are excellent padding for shipping vials of flies, etc.

Use of the plastic plugs in vials: 1. Best fit is achieved if they are pushed all of the way in and then pulled back out about 1/3 of their length. 2. Watch for creases or folds that might provide escape or entry channels. This is especially applicable to new plugs. 3. Plugs may be autoclaved at 121°C (250°F) and handle more easily with repeated use. 4. Dirty plugs may be washed in a mesh bag (we use a household automatic washer), autoclaved, dried in a hot air oven (not over 100°C) and are better than new. Dry overheating will ruin the plugs.

The polyurethane foam plugs seem to have these advantages in our laboratories: economy of re-use makes them cheaper than cotton; elimination of the irritation of cotton fibers in room air, and consequent allergic responses of people and equipment; greater uniformity provides more reliability in general use.

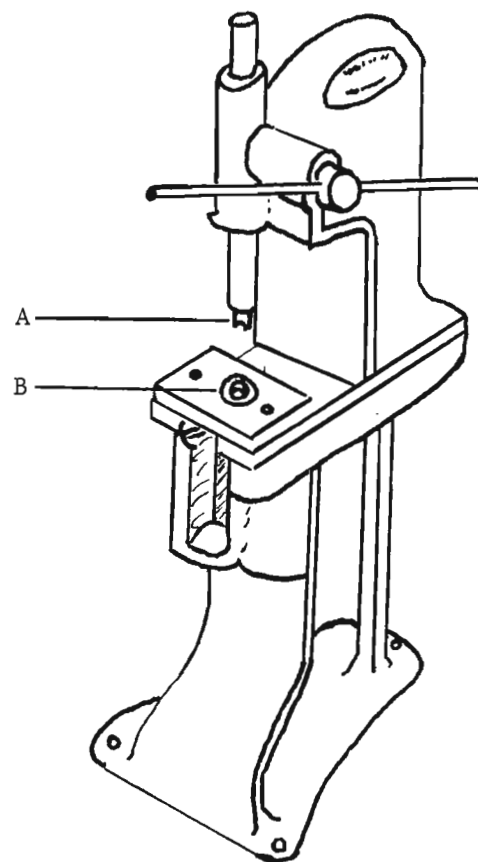


Figure 1. Sketch of press fitted with punch (A) and foot plate with hardened insert (B). Overall height of press frame approximately 145 cm (57").