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A Method for Rearing Spiders

L. S. Vincent
University of California,
Davis, California

Efficient handling and adequate visibility of spiders are important when working with large numbers in the laboratory. A technique is presented here which allows for rapid feeding and easy observation of spiders with a minimum of handling. Requirements basic to rearing spiders, such as proper humidity, temperature, food, and sanitation, and references to alternative spider rearing techniques are given by Whitcomb and Eason (1965).

Small spiders can be raised successfully in 1 x 8 cm vials stoppered with cotton. Styrofoam blocks with holes approximately 15 mm deep, 25 mm apart, and 7 mm dia. provide vial holders that are secure, light, and inexpensive and which can cushion against accidental impacts during transportation. One block of styrofoam 5 cm thick and 25 cm square with a support rod can expose 81 vials in a horizontal, vertical, or oblique plane.

Anaesthetized fruit flies, used as food, are picked up with a moist camel hair brush and deposited in the vials. A funnel placed over a vial makes deposition of the flies more efficient. The flies are anaesthetized on a "CO_2 platform" which can be constructed easily and inexpensively by using hard clear plastic or other suitable materials (fig. 1). The design illustrated here is constructed from: two 3 x 20 cm plastic cylinders; a plastic disc 20 cm dia.; parachute nylon; a 0.5 x 10 cm glass tube; rubber hosing; a 22.5 x 22.5 cm plastic base; and plastic cement or ethylene dichloride as glue. The platform is assembled by gluing taut nylon to the disc which has previously been drilled with fifty small holes three mm dia. The disc is then centred between the two cylinders and glued in place. A notch cut in the bottom of the united cylinder allows the installation of the small plastic tube through which the CO_2 will pass. With the tube glued in place the entire bottom of the unit is sealed to the hard plastic base. This completes the lower chamber which, when filled with CO_2, will force the excess gas up through the perforated disc and porous nylon into the upper chamber.

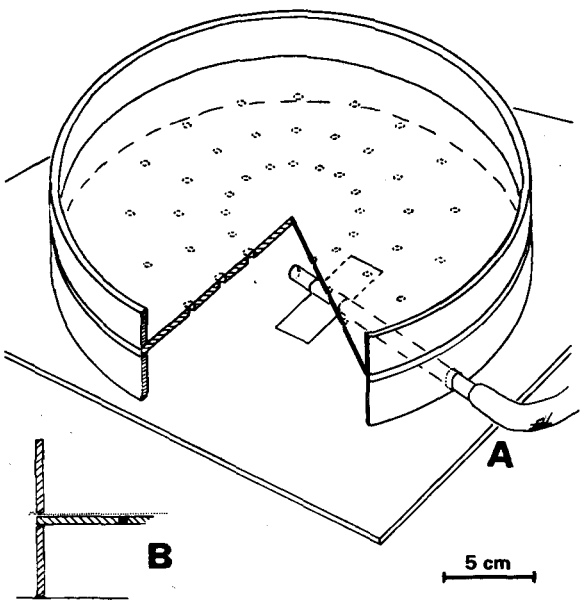

Fig. 1: Platform for anaesthetizing fruit flies, A, cut-away; B, detail.

A convenient feeding procedure is as follows: the vial holder is placed in a horizontal position and cotton stoppers are removed from several vials (depending on the location and activity of the spiders). A funnel is passed over each open vial as the desired number of anaesthetized flies are tapped into it. The cotton stoppers may be partially dipped in water before being replaced in the vial if the humidity requirement of the spider does not involve precise amounts of moisture. By following this procedure it is possible to feed and provide moisture comfortably to 10 spiders a minute.

A spider can be transferred to a clean or larger vial, when required, by placing the dirty or small vial horizontally on the platform until the spider is anaesthetized for removal. A dissecting microscope positioned over the platform may aid in the removal of minute spiders.

This technique is working successfully with representative species of the families Thomisidae, Sparassidae, Lycosidae, Salticidae, and Gnaphosidae.

References

WHITCOMB, W. H. and EASON, R., 1965: The rearing of wolf and lynx spiders in the laboratory (Families Lycosidae and Oxyopidae: Araneida). *Proc.Ark.Acad.Sci.*, **19**: 21-27.