

Technique for positional slide-mounting of Acari

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Abstract

A modified technique is given for microscope slide-mounting Acari in Hoyer's medium, where specimens can be positioned laterally, e.g. for males of Tetranychidae. Specimens are first set and briefly dried in a small amount of Hoyer's on the slide, then the full amount of medium is added with the cover glass. Very large-bodied mites can also be successfully mounted in Hoyer's with a variation of this method.

Key words: Hoyer's medium; slide-mounting technique; male Tetranychidae; Trombidoidea.

Introduction

Mite specimens must normally be mounted on slides prior to identification or other microscope study and usually they are positioned dorso-ventrally. In some cases, such as the identification of Tetranychidae, the distinguishing characters are found on the aedeagus of males and the lateral view is necessary (Pritchard & Baker 1955). It is often very difficult to mount a small male tetranychid on its side, as the fluidity of the medium and the pressure of the cover glass allows it to roll back to the natural dorso-ventral position. This problem can be overcome by the following technique.

A variation of the technique can be useful for slide-mounting very large Acari such as Trombidoidea or hard shelled (sclerotised) mites. The amount of Hoyer's medium required to infill around a very large mite under a cover glass can be so great that much of it flows out again, leaving air spaces. By building the medium up in layers this method avoids the use of artificial props to hold the cover glass up and allows for complete immersion in the medium. An additional benefit is that any other liquid contained within the specimen body, such as alcohol, has time to dissipate before the cover glass is applied, instead of causing air pockets by evaporating out through the covered medium as it hardens. The method for mounting water mites in glycerine given by Cook (1974) has some similarities in that the medium is built up in two layers with drying time in-between, but it apparently takes much longer (several days) and Cook mentions a great disadvantage in that sometimes 'oil droplets' develop in the glycerine.

Materials and methods

Hoyer's mounting medium was used. Other aqueous media based on modifications of Berlese's gum chloral fluid (Krantz 1978) should be equally successful.

Lateral mount of small mites, e.g. male tetranychids

This method can be used to mount specimens in other desired positions.

1. Place a very small drop of Hoyer's medium on the slide and spread it out to a fairly thin layer.
2. Place a mite in the Hoyer's and with the aid of pins, position it lying on its side. There should be barely enough medium to coat the mite. Several mites can be placed on one slide if desired.
3. Before placing the cover glass, briefly dry the slide until the Hoyer's has set and the mite is firmly stuck in position. Drying can be in a drying oven at 40°C for 5 to 10 minutes, or for about

30 minutes at room temperature. Test the consistency of the medium on the slide with a pin: it should be impossible to spread the Hoyer's any longer, and the pin should make only a slight indentation in the surface. Do not worry that the mite appears shrivelled at this stage. On the other hand, do not dry until the medium is completely hard.

4. Place a fresh drop of Hoyer's medium on top of the set specimen(s), then gently lower a cover glass over them. As the fresh Hoyer's combines with the semi-dry medium, the mite(s) rehydrate while staying in their set lateral position.

Dorso-ventral mount of very large mites, e.g. Trombidoidea, or sclerotised mites

1. Place a normal size drop of Hoyer's medium on the slide and position the mite dorso-ventrally in it.
2. Add extra Hoyer's medium to coat the specimen without the medium running out too widely on the slide.
3. Before placing the cover glass, dry the slide for up to 24 hours at room temperature, being careful to protect it from dust and damage. Repeat steps 2 and 3 if necessary.
4. Add more drops of medium, sufficient to fill in under the area of the cover glass, then gently lower the cover glass over the specimen. The fresh Hoyer's should combine with the semi-dried medium without leaving air pockets, and should not shrink away from the mite as the slide dries fully.

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