



A technique to dry mount Hymenoptera (Hexapoda) from alcohol in a few seconds, and its application to other insect orders

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Abstract

A new technique is presented that allows mounting insects directly from alcohol storage, while still wet or soaked, without any chemical treatment. It works particularly well for many groups of Hymenoptera, but not with delicate or soft specimens. Preliminary results are also commented for some Coleoptera, Diptera, Hemiptera, Mantodea, Neuroptera, and Orthoptera. External drying is performed with the aid of a small electric air pump. A 600 L/min air current quickly and efficiently spreads the specimen's wings and pilosity, while helping to position the antennae, legs, and abdomen. Specimens need to be pinned, even if small and pinned with minutens; this generally means the new technique will work for any insect greater than 3 mm long. This is precisely the size range for which an efficient mounting aid for alcohol preserved specimens was lacking.

Key words: Biodiversity, Collections, Diptera, Malaise, mounting, pinning, YPT

Introduction

With the advent of mass-collecting techniques for insects, such as the year-round and simultaneous usage of dozens of Malaise traps (*e.g.*, Hanson & Gauld 1995), collection trips employing thousands of Moericke traps (= yellow pan traps) distributed along several kilometers (*e.g.*, Aguiar & Santos 2010), or canopy fogging (Adis *et al.* 1998), sampling the entomofauna became extremely productive. But the need to mount all the resulting material before it can be studied—that is, processing all field samples into tens of thousands of adequately pinned and labeled specimens—generated a problem of equally impressive proportions. Mounting insects, even the easiest ones, requires some degree of skill and training, as well as time. Because of this, mass-mounting insects is an expensive and time-consuming activity. Mounting some insects becomes considerably more difficult if the specimens have membranous wings (about 30% of all living insect taxa) or well-developed pilosity (*e.g.*, bees and many flies), and were collected or are stored in alcohol. This is because adequately spreading and drying the wings and pilosity of alcohol-wet specimens is not easily performed, and might require expensive and/or dangerous substances and equipment, as is the case with Critical Point Drying (Gordh & Hall 1979), HMDS (Brown 1993; Orozco & Gaimari 2012), and several other techniques (Fisher & Jursic 1958; Vockeroth 1966; Sabrosky 1966; Truman 1968; Martin 1977:156; Noyes 1982; Taylor 1993; Noort 1995). Furthermore, these techniques are mostly indicated for small or tiny specimens (under 2–3 mm), and some of them will seriously damage the DNA of the specimens (Dillon *et al.* 1996).

Notwithstanding, biodiversity research about insects increasingly depends on field trips where copious numbers of specimens are collected, preserved and transported in alcohol, and then need to be dry mounted. And yet, since mounting even a reasonable fraction of such material is quite time-consuming, the vast majority of the collected specimens are usually stored in alcohol, often remaining there for many years.

The present work aims to propose the use of a new, instantly mastered technique, which reduces considerably the time needed for processing and dry-mounting some large groups of insects preserved in alcohol, while still generating mounted specimens which are perfectly suitable for investigations ranging from taxonomic research to molecular studies.