Mongolian Journal of Biological Sciences 2010 Vol. 8(1): 51-57

Mongolian Rotifers on Microscope Slides: Instructions to Permanent Specimen Mounts from Expedition Material

Christian D. Jersabek[1], Erdene Bolortsetseg[2] and Howard L. Taylor[3†]

[1]Department of Organismal Biology, University of Salzburg, A–5020 Salzburg, Austria, and *Academy of Natural Sciences, Center for Systematic Biology & Evolution, Philadelphia, USA, e-mail: Christian.Jersabek@sbg.ac.at*
[2]Institute of Meteorology and Hydrology, Laboratory of Hydrobiology, Ulaanbaatar, Mongolia, e-mail: boko_6891@yahoo.com;
[3]Taylor Laboratory, Sarasota, USA, [†]deceased

Abstract

We here describe a method for permanently mounting specimens on microscope slides, as we applied it in the newly established rotifer collection in Ulaanbaatar, Mongolia. The liquid photopolymer NOA 61 was used as a primary sealant for pure glycerine mounts. We furthermore outline simple methods of rotifer narcotization and fixation in the field that yield, for the majority of species, adequately preserved specimen material for further preparation and identification purposes.

Key words: Rotifera, narcosis, bulk fixation, glycerine mount, microscope slide preparation, bupivacaine, norland optical adhesive.

Introduction

Difficulties with permanently mounting rotifers in life-like extended state have long been, and often still are, a major hindrance that kept rotifer students from archiving their temporary mounts on durable microscope slides, and from starting collections of type and voucher specimens. Experimenting in that direction only began in the last quarter of the 19th century, over 100 years after the first rotifers have been described (Pelletan, 1878; Rousselet, 1893). Today, the lack of type material and the under-representation of rotifers in natural history collections, impede taxonomic work with this group. Very recently, as stipulated in the 4th edition of the International Code of Zoological Nomenclature (1999; effective 2000), it became mandatory for zoologists who want to establish new species-group names, to also deposit name-bearing types, with the recommendation to integrate these into well-curated institutional research collections.

We recently collected ample specimen materials to inventory rotifer diversity in Mongolia (Jersabek & Bolortsetseg, 2010), with the additional objectives of establishing a local reference collection on microscope slides in Ulaanbaatar, and adding to the Frank J. Myers Rotifera collection (Academy of Natural Sciences) in Philadelphia. We here briefly outline the procedures used to prepare durable specimen mounts, following Taylor (2005), with slight modifications.

Taylor's method (op. cit.) represents a state-of-the-art enhancement of Harring and Myers' (1922, 1928) and Myers' (1936) slide preparation techniques, with particular focus on choice of the most suitable and compatible chemicals, and ease of execution. The first author's experiences, after having studied thousands of slide preparations in historical museum collections, are discouraging for watery fluid mounts, or techniques that used incompatible mounting and sealing media, or brittle protective varnish. Such drawbacks may not be apparent after a few years, but can destroy specimens over the decades, depending on storage conditions. As a rule, watery fluid mounts (mostly formalin) tend to crystallize or dry up completely, and glycerine was often found to be absorbed by paraffin wax, or has been drained off through cracks in cement or brittle ringing compounds (Jersabek *et al*., 2003). The slide preparation technique as described below has already been successfully employed by one of us (C.D.J.) to restore numerous type and high priority specimen preparations that were at threat of deterioration