

A simple solution for accurate measuring of long and contorted ovipositors in pinned specimens of Hymenoptera

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Abstract

Practical problems exist when measuring long ovipositors that are strongly curved or twisted. A simple, effective and practically costless method is proposed to straighten curved ovipositors of pinned, dry specimens of Hymenoptera. The method holds the ovipositor, but not its sheaths, with a piece of adhesive tape fixed to a pin. A separate pin is then used as a lever to move the pin with the tape, pull and straighten the ovipositor, and hold the entire contraption in position. The method is tested with species of Stephanidae, Ichneumonidae and Gasteruptiidae, and defended as the best choice in relation to conventional as well as other unpublished possibilities, all summarized.

Key words: Measurement, parasitoid, ratio, straightening, Gasteruptiidae, Ichneumonidae, Stephanidae

Introduction

The length of the ovipositor or its sheaths in Hymenoptera often are of considerable taxonomic importance, but particularly difficult to measure if dried in curved or contorted (three dimensional) positions. Yet, this is commonly observed in museum specimens with long ovipositors (Fig. 1), such as those described by Townes (1975) and Achterberg (1986), with valves extending up to 8.1 times the wasps body length, or simply long and thin enough to coil once dried. There are no published proposed solutions to this problem, and most authors who present results based on ovipositor length provide little or no information on how this measurement was taken. For example, both authors above and Elliott (1922), Gupta & Gupta (1983), Shaw (1990), Smith (1996), Gauld (1991, 1997), Jennings & Austin (1997), Achterberg (2002) and Leathers & Sharkey (2003), all working with large wasps with long ovipositors, rely on biometric data based on the length of this structure, but provide no information at all on how the respective measurements were