



## A new species of *Hedyselmis* Hinton and notes on the phylogeny of the genus (Coleoptera: Elmidae)

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### Abstract

A new species, *Hedyselmis belatani* **sp. nov.**, is described from West Malaysia, based on morphological characters. The description includes detailed drawings of the most important structures. Four fragments of DNA, three mitochondrial (cox1, cob, rrrL) and one nuclear (SSU), were sequenced and compared with *H. opis* Hinton and other elmids species. The taxonomic position of *H. belatani* **sp. nov.**, its distribution and the phylogeny of the genus are discussed.

**Key words:** Coleoptera, Elmidae, *Hedyselmis*, new species, morphology, phylogeny, DNA, Malaysia

### Introduction

Elmid research looks back at almost 180 years of history. This family includes more than 1300 species, but reliable information on their phylogeny is still lacking (Kodada & Jäch 2005; Jäch & Balke 2008). Molecular analyses have hardly been employed in Elmidae. Actually, there are only three papers on elmids dealing with DNA sequencing (Guglielmino & Olmi 2001; Čiampor Jr. & Ribera 2006; Čiamporová-Zaťovičová et al. 2007).

Filling this gap, we decided to start with smaller taxonomic groups, trying to reconstruct their relationships, subsequently including these data in the general picture of the entire family. In the present paper we are dealing with the genus *Hedyselmis* Hinton, which, although it includes only three species (including the species newly described here), is a most remarkable genus, which presents several morphologically unique characters (Hinton 1976; Jäch & Boukal 1997). This paper is aimed at description of a new species of *Hedyselmis*, as well as at discussing its distribution and phylogeny, based on DNA sequence data.

### Material, methods & abbreviations

**Morphological analyses.** The morphology of the new species was studied by using a Nikon SMZ-1B stereomicroscope with diffuse lighting at magnifications up to 140x; genitalia were examined as temporary slides using a Leica DM1000 transmitted light microscope at magnifications up to 600x. Drawings were made with a drawing device (Leica L 3/20). Metric characters were measured to the nearest 0.05 mm using a Nikon SMZ-1B with an ocular grid.