



Review of the Capsalinae (Monogenea: Capsalidae)

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Abstract

The Capsalinae Baird, 1853 (Monogenea: Capsalidae) is revised based on a thorough review of original descriptions and examination of type museum material, where available, to validate species. A total of 262 type and voucher specimens was studied representing apparently 42 of the 60 currently described capsaline species. A combination of characters that should be independent of variation due to specimen preparation techniques was chosen to discriminate species. These characters include the presence/absence of papillae on the ventral surface of the haptor, the presence/absence and the morphology of haptoral accessory sclerites and the presence/absence of dorsomarginal body sclerites and their morphology and distribution. We consider that only 36 of the 60 nominal capsaline species are valid. We could find no support for *Caballerocotyla* Price, 1960 and therefore we synonymise it with *Capsala* Bosc, 1811. Under the current concept we recognise 22 species of *Capsala*, 7 species of *Capsaloides* Price, 1938, 3 species of *Nasicola* Yamaguti, 1968 and 4 species of *Tristoma* Cuvier, 1817. The following *Capsala* species are considered valid: *C. albsmithi* (Dollfus, 1962) n. comb.; *C. biparasitica* (Goto, 1894) Price, 1938; *C. caballeroi* Winter, 1955; *C. foliacea* (Goto, 1894) Price, 1938; *C. gouri* Chauhan, 1951; *C. gregalis* (Wagner & Carter, 1967) n. comb.; *C. interrupta* (Monticelli, 1891) Johnston, 1929; *C. katsuwoni* (Ishii, 1936) Price, 1938; *C. laevis* (Verrill, 1875) Johnston, 1929; *C. maccallumi* Price, 1939; *C. magronum* (Ishii, 1936) Price, 1938; *C. manteri* Price, 1951; *C. manteriaffinis* (Mamaev, 1968) n. comb.; *C. martinieri* Bosc, 1811; *C. notosinense* (Mamaev, 1968) n. comb.; *C. nozawae* (Goto, 1894) Price, 1938; *C. onchidiocotyle* (Setti, 1899) Johnston, 1929; *C. ovalis* (Goto, 1894) Price, 1938; *C. paucispinosa* (Mamaev, 1968) n. comb.; *C. pelamydis* (Taschenberg, 1878) Price, 1938; *C. poeyi* (Pérez-Vigueras, 1935) Price, 1938; *C. pricei* Hildago-Escalante, 1950. We consider the following *Capsaloides* species valid: *C. cornutus* (Verrill, 1875) Price, 1938; *C. cristatus* Yamaguti, 1968; *C. hoffmannae* Lamothe-Argumedo, 1996; *C. magnaspinosus* Price, 1939; *C. nairagi* Yamaguti, 1968; *C. perugiai* (Setti, 1898) Price, 1938; *C. sinuatus* (Goto, 1894) Price, 1938. The following *Nasicola* species are deemed valid: *N. brasiliensis* Kohn, Baptista-Farias, Santos & Gibson, 2004; *N. hogansi* Wheeler & Beverley-Burton, 1987; *N. klawei* Stunkard, 1962. Presently, we consider the following *Tristoma* species valid: *T. adcochineum* Yamaguti, 1968; *T. adintegrum* Yamaguti, 1968; *T. coccineum* Cuvier, 1817; *T. integrum* Diesing, 1850. A list of new and re-established synonyms is provided. The status of each species is discussed in detail and a key to all capsaline species that we consider valid is presented. The following 5 capsaline species are considered to be *species inquirendae*: *Caballerocotyla phillippina* Velasquez, 1982; *Capsala megacotyle* (Linstow, 1906) Johnston, 1929; *Tristoma fuhrmanni* Guiart, 1938; *T. levinseni* Monticelli, 1891; *T. uncinatum* Monticelli, 1889. The importance of careful character selection to discriminate between capsaline species and the need for studies of live parasites to obtain additional characters based on reproductive structures is addressed. Host-specificity in the Capsalinae is also discussed.

Key words: Monogenea, Capsalidae, Capsalinae, *Caballerocotyla*, *Capsala*, *Capsaloides*, *Nasicola*, *Tristoma*, Istiophoridae, Molidae, Scombridae, Xiphiidae

Introduction

The Capsalinae is a subfamily of 60 monogenean parasite species which live primarily on the skin and gills of highly-prized gamefish. Members of the Capsalinae can be distinguished from other capsalids by the presence of a septate haptor, a single pair of haptoral accessory sclerites and multiple testes (Whittington 2004). The taxonomy of the group continues to be in a state of great confusion (e.g. Guiart 1938; Price 1939; 1960; Egorova 1989; Lamothe-Argumedo 1997; Whittington 2004) and this can be attributed to a number of factors. First, over a third of the currently recognised capsaline species were described during the 1800s. Thus, not only can the original descriptions be difficult to obtain, but often no type material to verify these descriptions exists. Second, because capsalines are usually large and obvious parasites on cosmopolitan gamefish species, many parasitologists have collected them worldwide. Therefore, some capsalines from the same host species have been described as different species when collected at different localities globally. In these instances it is highly likely that these capsaline species are synonymous. Third, the confusion is further exacerbated by the fact that there is no consensus on the number of capsaline genera. Currently various classification schemes, none of which is based on phylogenetic relationships, exist for the subfamily. For example, Egorova (1989) recognises 5 genera within the Capsalinae: *Caballerocotyla* Price, 1960, *Capsala* Bosc, 1811, *Capsaloides*