



## Five new species of *Acanthobothrium* van Beneden, 1849 (Cestoda: Tetrphyllidea) in elasmobranchs from the northwest Atlantic and Gulf of Mexico with first records from smooth-hound sharks and guitarfish

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### Abstract

Five new species of *Acanthobothrium* van Beneden, 1849 are described from elasmobranchs from Atlantic coastal waters of the United States and western Gulf of Mexico. *Acanthobothrium cairae* **sp. nov.**, a category 3 species, from the rough-tail stingray *Dasyatis centroura* (Mitchill), from New England coastal waters of Narragansett Bay, Rhode Island is differentiated from congeners by a combination of characteristics including hook lengths, testis number (82–166) and distribution, bilobed ovary and 8 large muscle fascicles symmetrically encircling the reproductive organs. Four new category 1 species of *Acanthobothrium* from four new host species from the Gulf of Mexico are *Acanthobothrium lentiginosum* **sp. nov.** from the rhinobatid (guitarfish), *Rhinobatos lentiginosus* Garman; *Acanthobothrium schalli* **sp. nov.** from two species of triakid sharks, *Mustelus canis canis* Mitchill and *M. norrisi* Springer; and *Acanthobothrium ulmeri* **sp. nov.** and *A. westi* **sp. nov.**, both from the skate *Raja texana* Chandler (Rajidae). *Acanthobothrium floridensis* Goldstein, 1964 is reported from a new host, *R. texana* off the Texas coast in the western Gulf of Mexico, a new locality for this species. These species are differentiated by a combination of characters including size, bothridial size, total hook length, ratio of total hook length to bothridium length, ratio of bothridial length to cephalic peduncle length, ovarian shape, position of the genital pore, testis number and distribution. Biogeographically these records from sharks and the guitarfish are new for *Acanthobothrium* and add two new host families to the distribution of *Acanthobothrium* in coastal waters of the western Atlantic Ocean. *Acanthobothrium* is now known to occur in six families of elasmobranchs in the Gulf of Mexico: skates (Rajidae), rays (Dasyatidae, Gymnuridae, Myliobatidae), sharks (Triakidae) and guitarfish (Rhinobatidae) making it the most diverse geographical region for these cestodes in the eastern coastal waters of North America.

**Key words:** Parasites; Onchobothriidae; *Dasyatis*; *Mustelus*; *Raja*; *Rhinobatos*

### Introduction

Species of *Acanthobothrium* are both a conspicuous and widespread component of the cestode fauna of batoids worldwide (Euzet 1959; Cairn & Zahner 2001; Ghoshroy & Cairn 2001; Campbell & Beveridge 2002; Fyler *et al.* 2009). Edwin Linton (1890) was first to report *Acanthobothrium* from his extensive surveys of fishes in the coastal waters of North America in the environs of Woods Hole, Massachusetts, at Beaufort, North Carolina and at Tortugas, Florida (Linton 1905, 1908, 1913, 1916, 1924; Moore 1939). Linton's records of *Acanthobothrium* from various hosts have been addressed by other workers (Southwell 1925; Baer 1948; Euzet 1959; Baer & Euzet 1962; Goldstein 1964, 1967; Campbell 1969, 1970). In Canadian waters of the northwest Atlantic, Myers (1959) reported *A. coronatum* (Rudolphi, 1819) from three species of skates in the Gulf of St. Lawrence. Five of the six species of *Acanthobothrium* described from the Atlantic coast of the United States since the works of Linton were from various rays (Dasyatidae, Gymnuridae, Myliobatidae) and only one, *Acanthobothrium floridensis* (Goldstein, 1964), was from a skate (Rajidae). Until now there have been no published reports of *Acanthobothrium* from the various families of sharks or guitarfish (Rhinobatidae) in the entire western Atlantic Ocean and relatively few species have been described from sharks (19) or guitarfish (4) worldwide (Campbell & Beveridge 2002; Fyler *et al.* 2009).