# *Raillietiella gigliolii* (PENTASTOMIDA) INFECTING *Amphisbaena alba* (SQUAMATA, AMPHISBAENIDAE): THE FIRST RECORD FOR NORTHEAST BRAZIL

ALMEIDA, W. O.[1], FERREIRA, F. S.[1], BRITO, S. V.[1] and CHRISTOFFERSEN, M. L.[2]

[1]Departamento de Ciências Físicas e Biológicas, Universidade Regional do Cariri, Crato, CE, Brazil

[2]Departamento de Sistemática e Ecologia, Universidade Federal da Paraíba, CCEN, João Pessoa, PB, Brazil

Correspondence to: Waltécio de Oliveira Almeida, Departamento de Ciências Físicas e Biológicas, Universidade Regional do Cariri – URCA/CE, Campus do Pimenta, Rua Cel. Antônio Luiz, 1161, CEP 63105-000, Crato, CE, Brazil, e-mail: walmeida@urca.br

Received March 30, 2005 – Accepted July 5, 2005 – Distributed November 1, 2006

(With 1 figure)

The Raillietiellidae family is represented by the single pentastomid genus *Raillietiella*. There are records of parasitism for toads, lizards, serpents and amphisbaenids, showing evidence that there is quite a diversity of hosts (Almeida & Christoffersen, 1999, 2002). According to Almeida & Christoffersen (1999), Raillietiellidae is the sister group of the Cephalobaenidae and Reighardiidae families, representing the most basal clade of Pentastomida.

Circa 42 species of raillietiellids have been described. As general characters they present a cylindrical body, hooks forming a trapezoid design, parapodia present, rostrum reduced, cirri short, and fulcrum proportional to the size of the hooks (Riley, 1986; Almeida & Christoffersen, 1999, 2002).

Species of raillietiellids occurring in Brazil are (i) *Raillietiella freitasi* (Motta & Gomes, 1968), (ii) *R. furcocerca* (Diesing, 1863), and (iii) *R. gigliolii* Hett, 1924.

The latest citations of raillietiellids in Brazil were provided by Motta & Gomes (1968), Rego (1983), Vrcibradic *et al.* (2002) and Dias *et al.* (2005). Motta & Gomes (1968) registered the occurrence of *R. freitasi* in the lungs of *Mabuya punctata* (Spix, 1825) and *Bufo paracnemis* Lutz, 1925. Rego (1983) found *R. gigliolii* in the respiratory tract of *Amphisbaena alba* Linnaeus, 1758 and *R. furcocerca* infecting *Drymarchon corais* (Boie, 1827), *Xenodon merremii* (Wagler, 1824) and *Lachesis* sp. Vrcibradic *et al.* (2002) described *Raillitiella* sp. as parasitizing *Mabuya agilis* (Raddi, 1823). Dias *et al.* (2005) quote the presence of *Railleitiella* aff. *furcocerca* in the community study of helminths of *Cnemidophorus abaetensis* Dias *et al.*, 2002 and *C. ocellifer* (Spix, 1825). The only citations of raillietiellids for the northeast region of Brazil were provided by Motta & Gomes (1968) and by Dias *et al.* (2005), who studied material from Fernando de Noronha Island and the State of Bahia, respectively.

Amphisbaenids were collected between January and August, 2004 in two sites at the Floresta Nacional do Araripe (FLONA) (07° 16' S and 39° 26' W), a protected environmental area of the 'IBAMA – Institute for the Environment and Natural Resources', municipality of Crato, State of Ceará, Northeast Brazil. The amphisbaenids were captured by using the classical herpetological methods of active patterned collecting (Vanzolini & Papavero, 1967; Auricchio & Salomão, 2002). After collection, the amphisbaenids were euthanised with ether, fixed and preserved in ethanol 70%. They were subsequently identified according to Barros-Filho & Valverde (1996) and Vanzolini (2002). The snout-vent length (SVL) was measured in each specimen using a caliper in centimeters.

The respiratory tracts of the amphisbaenids were removed and pentastomids were searched for under a stereomicroscope. The pentastomids that were found were cleared in the Hoyer's medium and slide-mounted. Identification followed on the basis of the dimensions of the hooks in males and copulatory spicule by using a microscope with micrometric ocular (see Ali *et al.* 1984, 1985). A figure was made with a drawing tube connected to a brightfield microscope. The eco-parasitological terms used followed Bush *et al.* (1997).

A total of three female specimens of *Amphisbaena alba* (SVL range 29-82 cm) were collected and deposited in the collection of the Coleção do Laboratório de Zoologia da Universidade Regional do Cariri (LZ-URCA 0021, 0022, 0023). Among the three specimens of *A. alba* which were analysed, one presented three male specimens of *Raillietiella gigliolii* (LZ-URCA 0099, 0100, 0101) infecting the respiratory tract. This is the first record of *R. gigliolii* for the northeast region of Brazil. The infection patterns had a prevalence of 33.3% and mean intensity of 3.0 ± 0.0 (s = 3).

The raillietiellids encountered were characterized as adult specimens on the basis of their simple hooks. Nymphs are characterized by the presence of double hooks with chitinous accessory structures (see Ali *et al.* 1984; Riley 1986). The body length of the good preserved condition specimen of *R. gigliolii* is 9.5 mm. Other characters of the examined material are: abdomen without distinct annuli; cephalothorax trapezoidal, slightly wider than abdomen (Fig. 1a); hooks simple, sharp, anterior hook with AB 158 µm and BC 106 µm; posterior hook with AB 179 µm and BC of 129 µm (Fig. 1b); apical and dorsal papillae present and prominent; copulatory spicule is strongly curved and flares gradually into a trumpet-shaped base; anus ventral; caudal papillae present.

Amphisbaenidae is well represented in Brazil, with four genera (*Amphisbaena, Anops*, *Bronia*, and *Cercolophia*) and approximately 44 described species (Barros-Filho & Valverde 1996). Parasitological surveys for identifying the most common endoparasites of these reptiles have not been conducted in detail. The basic food items of amphisbenids include insects such as termites and ants (personal observations). These arthropod food items should be the main transmission vehicles for pentastomid parasites (Ali *et al.,* 1984, 1985).

*Acknowledgments* — Thank you to FUNCAP, Fundação Cearense de Apoio ao Desenvolvimento Científico e Tecnológico, for the research grant (Ref. 943/03 – Edital 003/03) and scholarship of Felipe Silva Ferreira. Regards to CNPq, Brazilian National Research Council for a scholarship to Samuel Vieira Brito and a productivity fellowship to Martin Lindsey Christoffersen. Appreciation to IBAMA, Brazilian Institute for the Environment and Natural Resources, for the permission to collect samples from preserved areas (080/04 – RAN/ IBAMA Processo 02007.001009/04-73). We also thank one anonymous reviewer for valuable suggestions and criticisms on the manuscript, and to Prof. Dr. Jörn Seemann (URCA) for revising the English version of the text.

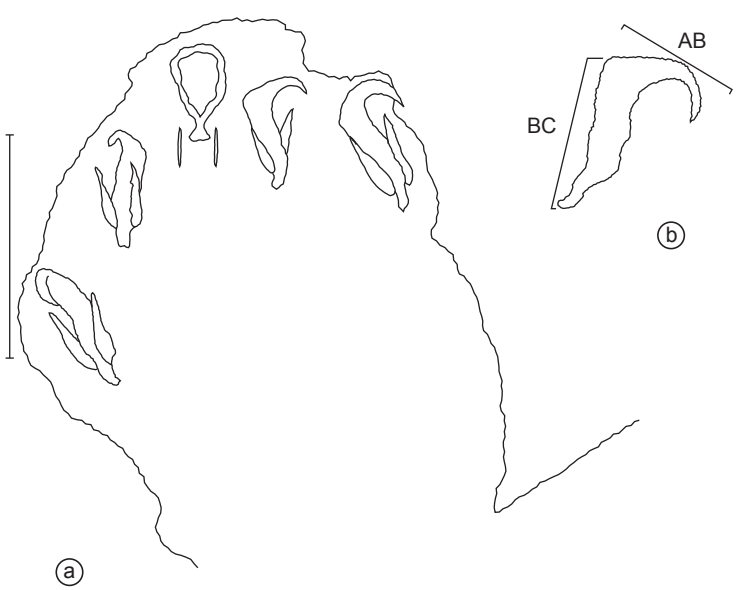


**Fig. 1 —** a) Details of the cephalothorax of *Raillietiella gigliolii* male (LZ-URCA 0101) viewed ventrally (scale bar = 0.5 mm); and b) Hook dimensions measured: AB, blade length and BC, shank length.

## REFERENCES

ALI, J. H., RILEY, J. & SELF, J. T., 1984, A revision of the taxonomy of pentastomid parasites (genus *Raillietiella* Sambon, 1910) from American snakes and amphisbaenias. *Syst. Parasitol., 6*: 87-97.

ALI, J. H., RILEY, J. & SELF, J. T., 1985, A review of the taxonomy and systematics of the pentastomids genus *Raillietiella* Sambon, 1910 with a description of a new species. *Syst. Parasitol., 7*: 111-123.

ALMEIDA, W. O. & CHRISTOFFERSEN, M. L., 1999, A cladistic approach to relationships in Pentastomida. *J. Parasitol.*, *85*(4): 695-704.

ALMEIDA, W. O. & CHRISTOFFERSEN, M. L., 2002, Pentastomida, pp. 187-202. *In*: J. Morrone & J. Llorente-Bousquets (eds.), *Biodiversidad, Taxonomía y Biogeografía de Artrópodos de México: Hacia una síntesis de su conocimiento*, 3º vol. 690p. Universidad Nacional Autónoma de México, México.

AURICCHIO, P. & SALOMÃO, M. G. (Orgs.), 2002, *Técnicas de coleta e preparação de vertebrados para fins científicos e didáticos.* Instituto Pau Brasil de História Natural, São Paulo, 348p.

BARROS-FILHO, J. D. & VALVERDE, M. C. C., 1996, Notas sobre os Amphisbaenia (Reptilia, Squamata) da Microrregião de Feira de Santana, Estado da Bahia, Brasil. *Sitientibus*, Feira de Santana, *14*: 57-68.

BUSH, A. O., LAFFERTY, K. D., LOTZ, J. M. & SHOSTAK, A. W., 1997, Parasitology meets ecology in its own terms: Margulis *et al*. revisited. *J. Parasitol.*, *83*: 575-583.

DIAS, E. J. R., VRCIBRADIC, D. & ROCHA, C. F. D., 2005, Endoparasites infecting two species of whiptail lizards (*Cnemidophorus abaetensis* and *C. ocellifer*; Teiidae) in a restinga habitat of northeastern Brazil. *Herp. J., 15*: 133-137.

MOTTA, C. S. & GOMES, D. C., 1968, Sobre um novo gênero e uma nova espécie de Cephalobaenidae (Linguatulida, Cephalobaeniformia). *Atas Soc. Biol. Rio de Janeiro*, *12*(1): 7-9.

REGO, A. A., 1983, Pentastomídeos de répteis do Brasil: Revisão dos Cephalobaenidae. *Mem. Inst. Oswaldo Cruz*, *78*(4): 399-411.

RILEY, J., 1986, The biology of pentastomids. *Adv. Parasitol.*, *25*: 45-128.

VANZOLINI, P. E., 2002, An aid to the identification of the South American species of *Amphisbaena* (Squamata, Amphisbaenidae). *Papéis Avulsos Zool.*, *42*(15): 351-362.

VANZOLINI, P. E. & PAPAVERO, N., 1967, *Manual de coleta e preparação de animais terrestres e de água doce*. Departamento de Zoologia-USP, Secretaria da Agricultura do Estado de São Paulo, 223p.

VRCIBRADIC, D.; ROCHA, C. F. D.; BURSEY, C. D. & VICENTE, J. J., 2002, Helminth communities of two sympatric skinks (*Mabuya agilis* and *Mabuya macrorhyncha*) from two 'restinga' habitats in southeastern Brazil. *J. Helminthol.*, *76*: 355-361.