Zootaxa 4052 (2): 297–331
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.4052.3.2
http://zoobank.org/urn:lsid:zoobank.org:pub:52083710-01B3-4CF1-A6CE-5A09419F7D25

The genus *Syllis* Savigny *in* Lamarck, 1818 (Annelida, Syllidae) from Australia. Molecular analysis and re-description of some poorly-known species

PATRICIA ÁLVAREZ-CAMPOS[1,4], ANA RIESGO[2], PAT HUTCHINGS[3] & GUILLERMO SAN MARTÍN[1]

[1]*Universidad Autónoma de Madrid, Departamento de Biología (Zoología), Facultad de Ciencias, Cantoblanco, 28049 Madrid, Spain.*
[2]*Department of Life Sciences, Natural History Museum of London, Cromwell Road, SW7 5BD, United Kingdom*
[3]*Australian Museum Research Institute, Australian Museum, 1, William Street, Sydney, NSW, 2010, Australia*
[4]*Corresponding author. E-mail: patricia.alvarez@uam.es*

Abstract

The taxonomy and phylogenetic relationships within *Syllis* Savigny *in* Lamarck, 1818, the type genus of the family Syllidae, are still a matter of debate because the group does not show clear synapomorphies and because of the lack of molecular data for many of the species. In order to help understand some of the phylogenetic relationships within the genus *Syllis*, we have performed a morphological revision of part of the material collected during decades by the Australian Museum staff, and provide molecular data for species not sequenced before. In particular, seven poorly known Australian species of the genus *Syllis* Savigny *in* Lamarck, 1818 have been re-described in detail and sequenced to analyze their phylogenetic position: *Syllis broomensis* n. comb., *S. crassicirrata* (Treadwell, 1925) n. comb., *Syllis cruzi* Núñez & San Martín, 1991, *S. edensis* (Hartmann-Schröder, 1989), *Syllis gracilis* Grube, 1840, *Syllis picta* (Kinberg, 1866) n. comb., and *S. setoensis* (Imajima, 1966). The results obtained indicate the paraphyly of *Typosyllis* and a possible new organization of *Syllis*, which contains at least four well-supported clades.

Key words: *Syllis*, polychaeta, taxonomy, phylogeny

Introduction

Syllids are one of the usually dominant groups in most marine habitats both in terms of number of species and individuals (San Martín 2003) and, in particular, they constitute a common and highly diverse group of animals in Australian waters (Glasby 2000). Many authors have undertaken major studies to describe the Australian Syllidae fauna, especially since the beginning of the 20th century (e.g. Haswell 1886, 1920, Augener 1913, 1927; Fauvel 1917; Monro 1931; Hartmann-Schröder 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1989, 1990, 1991; Hutchings & Rainer 1979, 1980; Hutchings & Murray 1984; Glasby 2000; Glasby & Watson 2001; San Martín & López 1998, 2003; San Martín 2005; San Martín & Hutchings 2006, San Martín *et al.* 2008 a, b; San Martín et al. 2010; Lattig et al. 2010; Aguado *et al.*, 2015a). However, none of the recent studies have focused on the type genus of the family: *Syllis* Savigny *in* Lamarck, 1818.

The genus *Syllis* is the largest and most diverse within the syllids, with more than 120 species worldwide distributed and around 30 described species in Australia (Licher 1999; San Martín 2003). However, there is still a lack of knowledge in the genus that may in part be due to the chaotic state of the group, given that there are many taxonomic problems, and its phylogenetic relationships are still a matter of debate. One of the main taxonomic problems is the lack of consensus among different authors regarding the status of the genus and the species within it. *Syllis* was divided by Langerhans (1879) into four subgenera, on the basis of chaetal characters: *Typosyllis* Langerhans, 1879, only with falcigerous chaetae; *Haplosyllis* Langerhans, 1879, with only thick simple chaetae; *Ehlersia* Quatrefages, 1865, with falcigerous and elongated compound chaetae (pseudospinigers); and *Syllis* with pseudo-simple (the result of the fusion of shafts and blades) and falcigerous chaetae. Many authors have followed this division (e. g. Fauvel 1923) while others have considered each subgenus as a valid genus (e. g. Fauchald 1977). For instance, Hartman (1959) proposed the change of species with pseudospinigers from *Ehlersia ex. auct.* to

Accepted by A. Nygren: 3 Nov. 2015; published: 3 Dec. 2015