



A new species of anapid spider (Araneae: Araneoidea, Anapidae) in Eocene Baltic amber, imaged using phase contrast X-ray computed micro-tomography

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Abstract

A new species of the extant spider family Anapidae is described from a fossil mature male in Eocene amber from the Baltic region and tentatively assigned to the genus *Balticoroma* Wunderlich, 2004. Phase contrast X-ray computed micro-tomography was used to reveal important features that were impossible to view using traditional microscopy. *Balticoroma wheateri* new species is easily diagnosed from all other anapids by having clypeal extensions that run parallel to the ectal surface of the chelicerae and in having the metatarsus of the first leg highly reduced and modified into what is presumably a y-shaped clasping structure. Although only a single extant anapid species occurs in northern Europe, the family was diverse in the Eocene. The discovery of yet another anapid species in Baltic amber supports the idea that Eocene European forests may have been a hotspot of evolution for this family of spiders.

Key words: Cenozoic, fossil, new species, palaeontology, spider, taxonomy

Introduction

Anapidae are very small (<2.0 mm) ecribellate, araneomorph spiders with three tarsal claws and a labral spur, usually visible between the unfused chelicerae; the legs lack spines and the metatarsi are shorter than the tarsi (Jocqué & Dippenaar-Schoeman, 2006), with the first pair of legs often enlarged and modified in mature males. Males often have a sclerotized dorsal scutum on the abdomen and the pedipalps are usually reduced or absent in females. The family was placed in the newly proposed EbCY clade of the symphytognathoid lineage within the superfamily Araneoidea (Rix & Harvey, 2010), was recircumscribed to include the subfamily Micropholcommatinae by Lopardo *et al.* (2010) as previously proposed by Schütt (2003), and appears closely-related to the family Symphytognathidae (Griswold *et al.*, 1998; Lopardo *et al.*, 2010).

Fossil spiders are common in amber deposits from around the world (Penney, 2010; Penney & Selden, 2011), but Baltic amber is by far the most famous and richly-endowed fossiliferous amber deposit, with more than 3,000 described arthropod species (Weitschat & Wichard, 2010). The amber is dated as mid-Eocene (i.e. Lutetian, ~44–49 million-years-old) (Ritzkowski, 1997) and is thought to have been produced by an umbrella pine (*Sciadopitys* sp.) (Wolfe *et al.*, 2009), although the identity of the Baltic amber tree is still somewhat of an enigma (see discussion in Weitschat & Wichard, 2010). The fossil assemblage is indicative of a tropical-subtropical forest, with lightly wooded areas and plenty of freshwater habitats (Weitschat & Wichard, 2010). The fossil spider fauna of Baltic amber is well known and, with more than 500 named species described to date (Wunderlich, 2004; Dunlop *et al.*, 2008, 2010; Selden & Penney, 2010), represents the most diverse fossil spider assemblage. The present paper describes a new fossil species of Anapidae in Baltic amber, using phase contrast X-ray computed micro-tomography techniques.