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A new soil-dwelling palpigrade species from Northern Italy (Palpigradi: Eukoeneniidae)

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Abstract

Among the 27 palpigrade species recorded in Europe so far, 23 occur in caves or narrow subterranean voids. *Eukoenenia gallii* **n. sp.** from a cork oak forest on the Italian Riviera (Liguria) is added to the small group of edaphic European palpigrades. *E. gallii* is not closely related to the common soil-dweller *E. mirabilis* (Grassi & Calandruccio, 1885), but to *E. subangusta* (Silvestri, 1903). Body shape and proportions make the new species look extremely edaphomorphic. All instars are described and illustrated with light micrographs of diagnostic traits.

Key words: Arachnida, *Eukoenenia*, taxonomy, diagnostic characters, edaphomorphic, Europe, Liguria

Introduction

The European palpigrade fauna currently comprises 27 species, all of which belong to the subcosmopolitan genus *Eukoenenia*. The vast majority are bound to caves or superficial subterranean habitats such as talus and gravel deposits, while, apart from the introduced *E. florenciae* (Rucker, 1903), just three native species regularly dwell the pore system of plant-bearing soil: the first-described palpigrade, *E. mirabilis* (Grassi & Calandruccio, 1885), which became a "widespread tramp" (Harvey et al. 2006) through human transport; its close relative *E. berlesei* (Silvestri, 1903); and the seldom recorded *E. subangusta* (Silvestri, 1903) which may populate deep soil layers (Condé 1998). Italy is the European country with the highest number of recorded palpigrade species (10 as yet), including the entire ensemble of indigenous soil-dwelling Palpigradi (Harvey 2003). In the present paper another edaphic species is described from Liguria.

For the first time in palpigrade taxonomy, micrographs of all diagnostic characters are added to the description of a new species.

Material and methods

At several dates in 2007, samples of the upper 10 cm of topsoil were taken by Loris Galli and colleagues in a cork oak (*Quercus suber*) plantation near Bergeggi (Savona, Liguria, NW Italy), less than 500 m from the coastline at 100–150 m above sea level. Microarthropods were extracted using Berlese–Tullgren funnels (2 mm mesh size) and fixed in 70% ethanol. Palpigrades were cleared in Marc André I fluid and eventually embedded in the water soluble Marc André II medium (Massoud 1967), one individual in toto per slide. The specimens were studied and photographed partly in the permanent medium, but usually in the clearing fluid. Coverglass fragments served as spacers which allowed gentle rolling of the animal. Photos were taken with a Nikon D 200 camera on a Nikon E 600 microscope equipped for DIC imaging. The micrographs were slightly edited (contrast enhanced, motifs partly cut out) using Photoshop CS2.

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