

Computerized key to the genus *Bursaphelenchus* Fuchs, analysis of species clusters based on morphology, using information of insect vectors and associated plants, with a revision of the genus.

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The genus *Bursaphelenchus* includes *B. xylophilus* (Steiner et Buhner, 1934) Nickle, 1981, which is of world economic and quarantine importance. Distinction among several species of the pinewood nematodes species complex (PWNSC) is often difficult. Besides standard morphology, morphometrics and molecular biology, new tools are welcome to better understand this group. The computerized (or e-) key of this genus, presented in this communication, includes 74 species (complete list of valid species of the world fauna) and 35 characters, that were used by the taxonomic experts of this group, in the original descriptions. Morphology of sex organs (male spicules and female vulval region) was digitized and classified to distinguish alternative types. Several qualitative characters with overlapping character states (expressions) were transformed into the morphometric indices with the discontinuous ranges (characters of ratios of the spicule dimensions). Characters and their states (expressions) were illustrated in detail and supplied by brief user-friendly comments. E-key was created in the BIKEY identification system (Dianov & Lobanov, 1996-2004). The system has built-algorithm ranging characters depending on their diagnostic values at each step of identification. Matrix of species and the character states (structural part of the e-key database) may be easily transformed using statistical packages into the dendrograms of general phenetic similarities (UPGMA, standard distance: mean character difference). It may be useful in the detailed analysis of taxonomy and evolution of the genus and in its splitting to the species groups based on morphology. The verification of the dendrogram using the information on the species links with insect vectors and their associated plants, provided an opportunity to recognize the five clusters (*xylophilus*, *hunti*, *eremus* sensu stricto, *tusciae* and *piniperdae* sensu stricto), which seem to be the natural species groups. The hypothesis about the origin and the first stages of the genus evolution is proposed. A general review of the genus *Bursaphelenchus* is presented.