

Progress in the use of scanning electron microscopy (SEM) applied to the taxonomy of the genus *Bursaphelenchus* (Nematoda: Parasitaphelenchidae)

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The scanning electron microscope (SEM) has been a major tool in detailed morphological observations of plant parasitic nematodes during the last 30 years, efficiently complementing light microscopical (LM) studies. Nematodes are extremely difficult to observe and characterize due to their small size (aprox. 1 mm long) and paucity of morphological characters, so detailed surface observations of several organs and nematode regions are of the highest value.

Among plant parasitic nematodes, one of the most devastating species is the “pinewood nematode” (PWN), *Bursaphelenchus xylophilus*, which has been a major problem for forest species, and in particular pines, in Asia (Japan, China, Korea) and has been recently detected in the European Union (Portugal).

B. xylophilus belongs to a closely related, morphologically similar group of species, within the genus *Bursaphelenchus*, and designated by the “*xylophilus* group”. SEM has become a crucial tool in observing several genital characters of males and females, such as male genital papillae, male copulatory spicules, female vulval flap and female genital papillae.s

In this presentation, we will show how SEM has been utilized to observe and characterize the shape of the vulval flap, the presence/ absence of papillae near the flap, and confirm the presence and the arrangement of the male genital papillae. LM is also used in this work to show its value as a complementary tool to SEM, in both genital characteristics and other, general, characters of the genus *Bursaphelenchus*, such as the male bursa and cephalic region.