

## SHORT COMMUNICATION

**Bacteria associated with the pinewood nematode *Bursaphelenchus xylophilus* collected in Portugal**

Cláudia S. L. Vicente, Francisco Nascimento, Margarida Espada, Manuel Mota and Solange Oliveira

Link Out to this Article at Universidade de Évora:


[REFERENCES \(22\)](#)   [EXPORT CITATION](#)   [ABOUT](#)
**Abstract**

In this study, we report on the bacterial community associated with the pinewood nematode *Bursaphelenchus xylophilus* from symptomatic pine wilted trees, as well as from long-term preserved *B. xylophilus* laboratory collection specimens, emphasizing the close bacteria-nematode associations that may contribute to pine wilt disease development.

**Keywords** Pine wilt disease - *Bursaphelenchus xylophilus* - Nematode - Bacteria - Phylogeny

**Fulltext Preview**

Antonie van Leeuwenhoek (2011) 100:477–481  
DOI 10.1007/s10482-011-9602-1

## SHORT COMMUNICATION

**Bacteria associated with the pinewood nematode  
*Bursaphelenchus xylophilus* collected in Portugal**

Cláudia S. L. Vicente · Francisco Nascimento ·  
Margarida Espada · Manuel Mota ·  
Solange Oliveira

Received: 3 May 2011 / Accepted: 30 May 2011 / Published online: 9 June 2011  
© Springer Science+Business Media B.V. 2011

**Abstract** In this study, we report on the bacterial community associated with the pinewood nematode *Bursaphelenchus xylophilus* from symptomatic pine wilted trees, as well as from long-term preserved *B. xylophilus* laboratory collection specimens, emphasizing the close bacteria-nematode associations that may contribute to pine wilt disease development.

**Keywords** Pine wilt disease - *Bursaphelenchus xylophilus* - Nematode - Bacteria - Phylogeny

Pine wilt disease (PWD) is considered a worldwide threat to pine forests, resulting in massive economic losses and negative ecological consequences for the affected countries (Rodrigues 2008; Xie et al. 2009). In 1971, the pinewood nematode (PWN) *Bursaphelenchus xylophilus* was proven to be the causal pathogenic agent of PWD (Kiyohara and Tokushige

1971) and nowadays constitutes an important quarantine species. A decade later, Oku et al. (1980) reported a possible association of PWN with toxin-producing bacteria, which later became evident by the studies developed by Zhao et al. (2003) and Han et al. (2003). It is now known that the PWN carries bacteria from different genera and that the bacterial communities differ among countries. In Japan, the genus *Bacillus* is predominant (Kawazu et al. 1996a), while in China, the genus *Pseudomonas* seems to be the most abundant (Kawazu et al. 1996b). In Korea, the genera *Burkholderia*, *Brevibacterium*, *Ewingella*, *Enterobacter* and *Serratia* appear to be associated with the PWN (Kwon et al. 2010).

The emergence of PWD in Portugal dates from 1999, with the first report of *B. xylophilus* in Europe (Mota et al. 1999). Initially, the affected area covered 510,000 ha of maritime pine (*Pinus pinaster*) forestland, mainly in the Setúbal peninsula (Mota et al. 1999), but more recently it has been detected in the center of Portugal, in Arganil and Lousã (Proença et al. 2010). In Portugal, the bacterial community associated with diverse nematode species found together with PWD foci varies between sampling regions and is mainly composed of the genera *Burkholderia* and *Pseudomonas*, as well as other bacteria from the family Enterobacteriaceae (Proença et al. 2010).

Despite the fact that the bacterial populations vary within countries or regions, many known plant pathogenic bacteria have been identified among these

C. S. L. Vicente · F. Nascimento · M. Espada · M. Mota  
NemaLab, Instituto de Ciências Agrárias e Ambientais  
Mediterrâneas (ICAAAM), Universidade de Évora,  
7002-554 Évora, Portugal

S. Oliveira (✉)  
Laboratório de Microbiologia do Solo, Instituto de  
Ciências Agrárias e Ambientais Mediterrâneas (ICAAAM),  
Universidade de Évora, 7002-554 Évora, Portugal  
e-mail: ism@uevora.pt

NOT LOGGED IN  
RECOGNIZED AS: UNIVERSIDADE DE ÉVORA (313-50-088) 3188 B-  
ON FCCN PORTUGAL (839-32-308)  
SERVER: MPWEB34  
HTTP USER AGENT: MOZILLA/4.0 (COMPATIBLE; MSIE 8.0;  
WINDOWS NT 6.1; TRIDENT/4.0; SLCC2; .NET CLR 2.0.50727;  
.NET CLR 3.5.30729; .NET CLR 3.0.30729; MEDIA CENTER PC  
6.0; TABLET PC 2.0; .NET4.0C)

**PhenoDays by LemnaTe**  
Plant Phenomics - Plant Phenotyping Symposium October 12th to 14th  
2011  
[www.LemnaTec.com](http://www.LemnaTec.com) **AdChoices** ▶

Share this Item

[email](#)   [citeulike](#)   [Connotea](#)   [Delicious](#)

REMOTE ADDRESS: 193.136.217.181

[Frequently asked questions](#)   [General info on journals and books](#)   [Send us your feedback](#)   [Impressum](#)   [Contact us](#)  
© Springer, Part of Springer Science+Business Media   [Privacy, Disclaimer, Terms & Conditions, and Copyright Info](#)