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9-17 Detection of the *European mountain ash ringspot associated virus* (EMARaV) in several European countries

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INTRODUCTION

The mountain ash tree (*Sorbus aucuparia* synonym rowan) is a popular species in Europe and is grown both in public greens and forests due to its robustness and decorative properties. Since more than 50 years there have been reports from various locations about disease symptoms such as chloroticr ingspots and mottling of leaves. The nature of the disease causing agent remained unknown until the observation of virus-like particles in the electron microscope (Ebrahim-Nesbat & Izadpanah 1992) and its transmissibility to healthy trees by grafting (Büttner & Führling 1995), which suggested a viral pathogen. This hypothesis was verified when dsRNA was successfully extracted from the inner bark and leaves of diseased trees (Benthack *et al.* 2005). The observed symptoms could be related to a virus now denominated *European mountain ash ringspot associated virus* (EMARaV) (Mielke & Mühlbach 2007), the typemember of the new genus *Emaravirus*, whose members display a minimum of four genomic (-)ssRNA segments (Mühlbach & Mielke-Ehret 2011).

Sorbus aucupaia is to date the only known host of EMARaV. The transfer to healthy trees was conducted successfully only within the species. A putative vector is the gall mite *Phytoptus pyri*, which has been found in diseased trees and in which the virus was successfully detected (Mielke-Ehretet al. 2010).

To acquire more information about the virus distribution across Europe, rowan trees with characteristic symptoms from several European countries were tested for an infection with EMARaV.

MATERIAL AND METHODS

Leaf material from rowan trees was collected in Sweden, Finland, Scotland, Germany and Italy in 2011. Twentyfour of 29 samples displayed EMARaV specific disease symptoms such as chlorotic ringspots and mottling. Also galls were observed on several samples. Total RNA was extracted from sampled leaflets and transcribed into cDNA by reverse transcription with random hexamers. The four genome segments were detected in a PCR with specific primers (Mielke *et al.* 2008).

RESULTS AND DISCUSSION

The virus was detected in 60 % of the symptomatic trees. EMARaV was neither detectable in mountain ash showing veinbanding symptoms sampled in Italy, nor in asymptomatic trees from Germany. The RNA 3 was detected in 14 positively tested samples confirming an EMARaV infection of trees expressing chlorotic ringspots and mottle. Additonally, an RNA2 specific fragment was amplified from twelve analysed leaf samples by RT-PCR. All four viral RNAs were detetable in eight sampled trees originating from Sweden, Finland, Germany and Scotland. The virus was confirmed for the first time in five trees in Scotland showing characteristic chlorotic ringspots.

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