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IDENTIFICATION OF EUROPEAN STONE FRUIT YELLOWS FROM APRICOT AND JAPANESE PLUM IN ALBANIA

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SUMMARY - A survey was carried out in Albania to check the presence of phytoplasmas in stone fruit crops. Ten stone fruit orchards and/or varietal collections were surveyed during autumn 2000 in 5 districts of the Central and South-Eastern Albania (Kavajë, Elbasan, Librazhd, Pogradec and Korçë), with particular attention to apricot, Japanese plum and myrobalan trees. Typical symptoms of European Stone fruit Yellows (ESFY) were encountered in several orchards. Six samples were collected and assayed by single-step PCR using primers f01/r01 specific for the "AP" phytoplasma group, followed by RFLP using the restriction enzymes *Ssp*I e *Bsa*AI. PCR products were amplified from five of six samples. Three apricots, one myrobalan and one plum were shown to be infected with ESFY. Infection from ESFY was detected in the following locations: Lumalas (KO) for Japanese plum, Vërdovë (PG) for apricot and myrobalan and Fushë Mbret (EL) for apricot. Infected apricot and myrobalan plum were old trees and located inside ex-varietal collections whereas the Japanese plum was a young tree of three-four years old of imported origin.

Key words: Albania, apricot, Japanese plum, phytoplasma, ESFY, PCR

RESUME *- Une enquête a été menée en Albanie afin de vérifier la présence des phytoplasmes chez les rosacées à noyau. Dix vergers et/ou collections variétales ont fait l'objet d'une prospection au cours de l'automne 2000, dans 5 régions de l'Albanie centrale et sud-orientale (Kavajë, Elbasan, Librazhd, Pogradec et Korçë), en accordant une attention particulière aux abricotiers, aux pruniers japonais et aux myrobolans. Des symptômes typiques de l'European stone fruit yellows (ESFY) ont été observés dans de nombreux vergers. Six échantillons ont été collectés et testés par la PCR en phase unique, avec les amorces f01/r01 spécifiques pour le groupe du phytoplasme " AP ". Successivement, les enzymes de restriction Sspl et BsaAI ont été utilisées pour effectuer la RFLP. Les produits de la PCR ont été amplifiés à partir de 5 des six échantillons. Trois abricotiers, un myrobolan et un prunier se sont révélés infectés par l'ESFY. L'infection par l'ESFY a été détectée dans les localités suivantes : Lumalas (KO) pour le prunier japonais, Vërdovë (PG) pour l'abricotier et le myrobolan et Fushë Mbret (EL) pour l'abricotier. Les abricotiers et le myrobolan infectés étaient des arbres âgés, installés à l'intérieur de l'ancienne collection variétale, alors que le prunier japonais était un jeune arbre de trois-à-quatre ans, importé de l'étranger.*

Mots-clés: *Albanie, abricotier, prunier japonais, phytoplasme, ESFY, PCR*

INTRODUCTION

Stone fruits are traditionally grown in Albania, among which the main species are European plum and cherry. The fruit tree industry began to decline in the late 1980s and accelerated in the 1990s due to the gradual abandon and destruction of state orchards and varietal collections, and transition phase from state to private ownership. Domestic production of fruits was 52,500 tons or approximately 60% (Agolli, 2000). In Albania two types of fruit orchards exist, i.e. old inherited from the previous state farms (many completely abandoned and often with few scattered trees) and plantings more recently established, boosting the fruit production.

During the 1990s, considering the importance of the assessment of sanitary status of the stone fruit industry as a priority for further development of the sector, several studies were carried out related to virus diseases.

Considering the presence of European stone fruit yellows (ESFY) in several neighbouring countries and little was known regarding phytoplasmas status in *Prunus* spp. therefore, a study was carried out to

investigate their presence in Albania. The preliminary results were reported in a disease note (Myrta *et al*., 2003). This paper provides a detailed description of our study.

MATERIALS AND METHODS

The survey was organised in few important areas for the stone fruit production, giving priority to ex-varietal fruit collections. Ten stone fruit orchards and/or varietal collections were surveyed in 5 districts of the Central and South-Eastern Albania (Kavajë, Elbasan, Librazhd, Pogradec and Korçë). Selectively our attention was paid to apricot, Japanese plum and myrobalan plum species. Field visits and collection of samples occurred during October 2000.

Leaf samples were collected from symptomatic trees. Mid-ribs and petioles extracted from six samples (3 apricots, 2 myrobalan plums and 1 Japanese plum) were assayed by single-step PCR using primers f01/r01 specific for the "AP" phytoplasma group (Lorenz *at al*., 1995), which comprises Apple proliferation (AP), Pear decline (PD) and ESFY, followed by RFLP using the restriction enzymes *Ssp*I e *Bsa*AI.

RESULTS AND DISCUSSION

Typical symptoms of ESFY were observed in several orchards. In apricot, chlorotic to yellow conical rolled leaves were evident. Generally, on infected branches, premature leaf drop occurred, whereas the location of the branches was frequently on the top of the canopy. In Japanese plum, symptomatic leaves were smaller, cylindrically rolled, and yellow to brownish-red colour. Small and yellow leaves were found in myrobalan trees also.

PCR products were amplified from five of six samples, three apricots, one myrobalan and one plum confirming the presence of ESFY-phytoplama. ESFY was detected in samples from: Lumalas (KO) for Japanese plum, Vërdovë for apricot and myrobalan (PG) and Fushë Mbret (EL) for apricot (Fig. 1). Infected apricot and myrobalan plum were old trees and in ex-varietal collections whereas the Japanese plum was a young tree of three-four years old of imported origin.

Fig. 1. Distribution of ESFY foci in Albania

CONCLUSIONS

This limited survey demonstrated the presence of ESFY phytoplasma in various areas of Albania. However, to have a comprehensive picture for its distribution in the country, more surveys are needed. The extent of ESFY in Albania remains uncertain, its distribution in different *Prunus* species and varieties suggests natural spread has occurred. As the presence of the vector *Cacopsylla pruni* (Carraro *et al*., 1998) is suspected, surveys for the vector are necessary also. Beside Sharka, which is already endemic in many areas of Albania (Myrta *et al*., 1994), this is yet another major disease and threatens the future of the local stone fruit industry.

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