Sanitary status of stone fruit industry in the Mediterranean countries: Italy

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Stone fruits (apricot, cherry, almond, peach, and plum) play an important role in Italy whose fruit production averages 9% of the world production (FAO, 1996), and virus diseases affecting fruit yields are not negligible. In Italy, over 15 viruses have been reported to affect stone fruits as well as another 50 diseases some of which are not always related to a given agent. Symptoms vary according to their occurrence on the leaves (chromatic alterations, deformations, enations), fruits (alteration of shape, colour, size, chemical composition) and wood (pits, different diameter between scion and rootstock).

Common viruses present in Italy include: Prunus necrotic ring spot (PNRSV), prune dwarf (PDV), and apple mosaic (ApMV) ilarviruses, apple chlorotic leaf spot trichovirus (ACLSV), and plum pox potyvirus (PPV).

Data about the incidence of these viruses are not available for the entire country. An investigation conducted in South-eastern Italy reported infection levels of 86% in almond and 65% in cherry. In both species, infections by two or more viruses were also very high (45% in almond and 20% in cherry). Infection rate among other stone fruit species ranged up to 25% in plum and 35-36% in peach and apricot. As to viruses, PDV is the dominant virus in cherry (75%), but it is also relevant in almond and plum (33% and 28% respectively). The presence of ApMV was consistently high (45%) only in almond. Dual infections by PNRSV and ACLSV were detected in high frequency in peach (85%), apricot (78%) and plum (57%). PNRSV alone was 55% in peach and 33% in plum and ACLSV was 45% in apricot (Savino *et al.*, 1995).

Although it was not widely spread, PPV was very important where it occurred. PPV was reported for the first time in 1975 from Trentino in plum (Canova *et al.*, 1977) and later in the major Italian apricot, peach, and plum growing regions. In Italy the virus strains are D (Dideron) and M (Marcus). PPV-M was detected in some orchards in Emilia (Poggi Pollini *et al.*, 1996), in Campania (Boscia *et al.*, 1997), in Trentino (Frisinghelli *et al.*, 1997), and in Central Italy (Pasquini *et al.*, 1999). In 1994, a few sweet cherry trees from Apulia with a syndrome denoted by apical necrosis were associated with PPV infections(Crescenzi *et al.*, 1994). This is

the only record of PPV in cherry in the region, which has not been confirmed by surveys and laboratory tests which are still underway in the cherry-growing areas.

In Italy PPV eradication supported by a decree of mandatory control (MD of 31 December 1992 and MD of 21 February 1997) and the activation of certification programmes first at regional, then at national level, have allowed to control sharka in areas affected by strain PPV-D with excellent results as in Apulia (Savino *et al.*, 1995).

Nepoviruses reported were strawberry latent ring spot nepovirus (SLRV) in some peach-growing areas of Piedmont (Belli *et al.*, 1981), and cherry leaf roll nepovirus (CLRV) (Giunchedi and Poggi Pollini, 1984) in cherry and in walnut (Quacquarelli and Savino, 1977). No other nepovirus was reported from stone fruits in Italy.

Tomato bushy stunt tombusvirus (TBSV) was associated with the 'ciliegia butterata' disease (Quacquarelli, 1985). Cherry green ring mottle virus (CGRMV) was detected in cherry and peach (Savino *et al.*, 1997) and a carla-like virus isolated sporadically from almond (Meskat *et al.*, 1992) and cherry (Grayaa *et al.*, 1993).

Peach latent mosaic viroid (PLMVd) was widespread in peach, nectarine, and clingstone orchards in central and northern Italy where it caused severe damages (Giunchedi *et al.*, 1992). PLMVd was latent in some plum cultivars (Faggioli *et al.*, 1997), but detected in plants affected by plum bearing spotted fruits (Giunchedi *et al.*, 1997). The hop stunt viroid (HSVd) was recently been identified in peach and plum (Loreti *et al.*, 1998) and apricot (Di Terlizzi, unpublished).

Recently, a close relationship was found between the cherry chlorotic rusty spot disease described in Southern Italy on sour and sweet cherry and a viroid-like satellite RNAs (Di Serio *et al.*, 1996 and 1997).

Much attention has recently been paid to phytoplasmas after the introduction of new Chino-Japanese plum varieties. The plum disease leptonecrosis was widespread in central and northern Italy caused by phytoplasmas belonging to the group of apple proliferation (AP) (Poggi Pollini *et al.*, 1995). In apricot-growing regions (Campania, Emilia-Romagna and Veneto), foci have been identified of apricot chlorotic leaf roll (ACLR) phytoplasma belonging to the European stone fruit yellows group (ESFY) (Pastore *et al.*, 1997).

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