Table 1. Results of ELISA and IC-RT-PCR tests for PPV detection in apricot seeds and seedlings

Selections	Seeds						Seedlings	
	ELISA			IC-RT-PCR			ELISA	IC-RT-PCR
	No. of seeds (%)	Infected tegument (%)	Infected cotyledons	Infected tegument (%)	Infected cotyledons (%)	No. of seeds		
489-I-XXIV-66	25	100	0	100	100	21	0	n.t.
489-G-XIII-83	32	75	0	87.5	25	24	0	0
489-G-XI-17	27	100	0	100	40.7	22	0	n.t.
489-I-XXIV-5	32	65.6	0	75	21.8	32	0	0
491-M-XXIII-54	20	100	0	100	100	22	0	0
491-M-XXIV-86	52	82.6	0	85.5	34 6	20	0	n.t.
489-I-XXIII-138	27	0	0	0	0	16	0	0
489-G-XVI-63	20	50	0	70	25	23	0	0
489-I-XXIV-6	35	74.2	0	88 5	60	15	0	0
489-I-XXV-117	28	67.8	0	67.8	10.7	13	0	0
489-G-XIII-82	27	51 8	0	51.8	18.5	26	0	0
489-I-XXIII-130	28	0	0	0	0	19	0	0
Total	353	64.8	0	69.9	34.8	253	0	0

n.t. = not tested.

in the case of cotyledons where, probably, the viral concentration was very low.

The results reported in Table 1 show that the virus was not uniformly present in different parts of the seed. In fact, it was detected by IC-RT-PCR in 69.9% of teguments but only in 34.8% of cotyledons (Fig. 2). Not all cultivars reacted in the same way. In fact, in spite of clear symptoms, two groups of seeds belonging to two different plants (489-I-XXIII-138 and 489-I-XXIII-130) were PPV-negative in both tests. All the other tested groups showed different levels of infection, the percentage of which ranged between 51.8 and 100 in teguments and between 10.7 and 100 in cotyledons.

Seedlings germinated from infected seeds and maintained under insect-proof screenhouse never showed any symptoms of the infection and were PPV-negative either in ELISA or IC-RT-PCR tests performed every six months during a 2-year period.

On the basis of the *Rsa*I RFLP analysis, the PPV isolates detected in infected seeds belong to Dideron group (Fig. 3). The same results were obtained by Western blot analysis of samples from infected leaves of parental plants: the apparent molecular mass of the PPV coat protein was 36 K corresponding to the PPV-D group (Fig. 4).

The PPV isolates present in the seeds analysed in our laboratory and collected from different cultivars of naturally infected apricot trees appear to play no role in the epidemiology of the virus. Anyway, in order to verify the absolute absence of PPV infection, seedlings from infected seeds will be later retested over another time period. In this way, the possibility of a late appearance of the virus infection, after a long latent period, will be evaluated.

The presented results are in agreement with others reported from western Europe but are in contrast with those from other eastern countries. A different geographical distribution of PPV strains could explain these contradictory data. In fact, PPV isolates coming from southern and eastern Europe generally belong to the Marcus group, while the most common strain present in western Europe is PPV-D (Candresse *et al.*, 1995). The isolates detected in our experiments belong to PPV-D strain and this fact indicates that the PPV transmission by seed could be highly influenced by the virus strain.

However, PPV-M has been recently reported in many western European countries, too. This fact could enhance the risk of a spread of the virus also by the use of seedlings originating from infected seeds. Thus, it is very important to further investigate the way of transmissibility of the M strain.

Finally, a very interesting result is the possibility to detect the virus by IC-RT-PCR also in cotyledon tissues which were always negative by ELISA. This fact confirms the higher sensitivity of IC-RT-PCR compared to ELISA and emphasizes the necessity to use it when it is very important to ascertain the sanitary status of plants.

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