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Biological and serological procedures to detect three nepoviruses in fruit trees

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[fulltext]

Cherry leaf roll virus (CLRV), *Myrobalan latent ringspot virus* (MLRSV) and *Strawberry latent ringspot virus* (SLRSV) were transferred by budding to woody trees, hybrid Ishtara, peach cv. GF 305 and cv. Lesiberian. Three buffers with antioxidants and stabilisers: 0.01M phosphate with 1% caffeine; 0.007M phosphate-0.01M veronal with 0.01M cysteine hydrochloride and 0.007 EDTA; 0.015M phosphate with 1% nicotine and 0.066M phosphate buffer without additives were compared for their efficiency in mechanical transmission from woody sources to herbaceous hosts (*Chenopodium quinoa* and *C. amaranticolor*). 0.007M phosphate-0.01M veronal buffer with 0.01M cysteine hydrochloride, and 0.007 EDTA and 0.015M phosphate buffer with 1% nicotine were found to be the best buffers for the three nepoviruses. Both biological transmission to herbaceous assay hosts and detection by ELISA in the investigated tree are necessary to reliably detect the three nepoviruses. Biological detection is reliable from April to June, and in September and October. ELISA detection is also more difficult in July and August. The suitability of *C. quinoa* and *C. amaranticolor* to maintain CLRV, MLRSV and SLRSV was compared. *C. amaranticolor* plants were found to be more suitable for CLRV and SLRSV, infected plants grow over 6 months after mechanical inoculation by the nepoviruses. *C. quinoa* plants proved to be most suitable for maintenance of MLRSV, while *C. amaranticolor* is a symptomless host of MLRSV. Reinoculation with the nepoviruses is recommended in intervals of 4 to 6 months.

Keywords:

Cherry leaf roll virus; *Myrobalan latent ringspot virus*; *Strawberry latent ringspot virus*; mechanical transmission; herbaceous hosts; bud transmission; fruit trees; DAS-ELISA; electron microscopy

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