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The efficient control of *Plum pox virus*

Plum pox virus (PPV) is transmissible by grafting, budding, and by aphids in a nonpersistent way. In case, that will be combined varieties with rootstocks which cannot be infected with PPV through aphid inoculation, trees and orchards will remain PPV free for their entire lifetime. Genetically modified (GM) plum (*Prunus domestica* L.) cv. 'HoneySweet' (clone C5) was proved as the first plum variety for which it is not possible to inoculate PPV through by aphid inoculation. We have proved, that rootstock myrobalan PK which is suitable for plum and apricot varieties also cannot be infected with PPV through aphid inoculation. The GM plum variety 'HoneySweet' grafted on the rootstock myrobalan PK will completely resist aphid-transmitted PPV infection. The resistance to PPV through aphid inoculation, conditioned by one dominant gene locus, can be used to develop new PPV resistant varieties with the same level of resistance to aphid-transmitted PPV. Cross-hybridization between PPV resistant 'HoneySweet' plum, and 'Pozegaca', 'Domáci velkoplodá' or 'Hauszwetske' plums, a popular variety with high-quality fruits, but very susceptible to PPV, have been carried out. We are testing plum 'Anna Späth', 'Gabrovská', 'Althane renclode', and apricot 'Harko' 'Hargrand', 'Krajova' varieties resistant to PPV, grafted on rootstock myrobalan PK, for aphid inoculation. This research can result in another variety which cannot be infected with PPV through aphid inoculation. Ultimately, that will provide a long-term stable production for growers, and a dependable supply of healthful fruits for consumers.

Biography

Polák Jaroslav, Professor, Plant virologist, Diploma in engineering. U. Agriculture, Prague, Czech Republic, 1964, PhD (CSc) Mendel's U Agriculture, Brno 1974, DSc. Mendel's U. Agric., Brno 1992. Asst. Prof. Czech U. Agrl., Prague, 1999. From rsch. Asst. to Director of phytomedicine division, Research Institute of Crop Production, Prague. 30 years Head of the Department of Virology, Res. Inst. Crop Prod. Adviser of International Foundation for Science, Stockholm. Co-author: European Handbook of Plant Diseases. Contbr. ca 250 articles to profl. journals. Fellow of International Society for Horticultural Sciences, European Foundation for Plant Pathology. Recognized specialist for Plum pox virus problems. Invited speaker to U.S. and Canadian Universities. Biography several times in Who is Who in Science and Engineering, in Who is Who in the World, Hübners Who is Who, Who is...? (v České republic) 2012. Oxford Encyclopedia, 2016. Founder of Czech Phytopathological Society. Organizer of International Scientific Conferences. Office: Research Institute of Crop Production, Drnovská 507, 16106 Prague, Czech Republic.

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