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## Examination of suitability of the cultivar 'Čačanska Lepotica' as a pollenizer for promising plum genotypes developed at FRI, Čačak (Serbia)

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One of the most important plum (*Prunus domestica* L.) breeding objectives is regular and large yield which depends on the degree of self-fertility. Partially self-fertile and self-sterile genotypes require compatible pollenizers. The aim of this study was to investigate suitability of the cultivar 'Čačanska Lepotica' as a pollenizer of six promising plum genotypes (hybrids 38/62/70, IV/63/81, 32/21/87, 34/41/87, and 22/17/87, and cultivar 'Nada') developed at Fruit Research Institute (FRI), Čačak. Previous studies showed that the abovementioned plum genotypes were characterised by different levels of self-fertility. Also, a satisfactory overlapping in the flowering time of pollenizer and studied genotypes was found. The investigation was conducted over two years and included pollen germination in vitro of the pollenizer cultivar, as well as quantitative parameters of pollen tube growth in vivo (the number of pollen tubes in the upper third and in the base of the style, number of pollen tubes in the ovary, the percentage of pistils with the pollen tube penetrating the nucellus of the ovule 10 days after pollination) and fruit set under cross pollination. The same quantitative parameters of pollen tube growth in vivo and fruit set under open pollination were used for comparison. Tested cultivar had good pollen germination, ranging from 44.16% in the first year to 44.57% in the second year of study. All studied plum genotypes except hybrid 22/17/87 had the higher values of quantitative parameters of pollen tube growth in vivo and fruit set in the cross pollination variant compared to the open pollination variant. Average fruit set in the cross pollination variant ranged from 15.42 % (hybrid IV/63/81) to 32.61 % ('Nada'). Based on the obtained results, the cultivar 'Čačanska Lepotica' represents a satisfactory pollenizer for hybrids IV/63/81 and 32/21/87 and a good pollenizer for hybrids 38/62/70, 34/41/87, and 22/17/87, and cultivar 'Nada'.

**Keywords:** European plum, cross pollination, pollen germination, pollen tube growth in vivo, fruit set

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