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Prune Genetics, Breeding and Pomology**

**PROGRAMME AND BOOK OF
ABSTRACTS**

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ASSESSMENT OF SELF-(IN)COMPATIBILITY IN NEW PLUM (*Prunus domestica* L.) CULTIVARS DEVELOPED AT FRUIT RESEARCH INSTITUTE, ČAČAK

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Breeding work at Fruit Research Institute, Čačak is predominantly focused on developing new European plum (*Prunus domestica* L.) cultivars. Since its establishment until now, 18 plum cultivars have been named and released. Knowledge of self-(in)compatibility status of these cultivars is of great importance for growers to design orchards, and for breeders to choose parents in future breeding programmes. The objective of this study was to determine the degree of self-(in)compatibility of three new plum cultivars released in 2018 ('Petra' and 'Divna') and 2020 ('Lana'). The investigation was conducted during two years (2018/19), and included pollen performance in vitro (germination on agarose-sucrose medium) and in vivo (the number of pollen tubes in the upper third of the style, at the base of the style and in the ovary; the percentage of pistils with the pollen tube penetrating the nucellus 10 days after pollination), as well as examination of fruit set under self- and open pollination modes. In vitro pollen germination had high values, ranging between 61.57% ('Lana') and 62.73% ('Petra'). 'Divna' and 'Petra' were characterized by the high values of all parameters of pollen tube growth in vivo, as well as fruit set in both self-pollination (33.26 and 30.35%, resp.) and open pollination (53.18% and 48.74%, resp.) variants. In the pistils of 'Lana', pollen tubes growth inhibition was manifested in the upper parts of the style after self-pollination, so in the base of the style and in the ovary no tubes were noticed; fruit set was not observed as well. Somewhat lower values of all mentioned parameters (except the number of pollen tubes in the upper third of the style) were also found in 'Lana' under open pollination mode. Based on the obtained results, 'Lana' can be characterized as self-incompatible, while 'Petra' and 'Divna' are self-compatible cultivars.

Keywords: European plum, new cultivars, self-pollination, open-pollination, initial and final fruit set.