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Study of Antioxidant Enzymes Activity and Morphological Changes in Some Vigorous Pears Inoculated with Cause of Fire Blight Disease *(Erwinia amylovora) In vitro* Conditions

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Erwinia amylovora bacterium is the cause of Fire blight disease and is one of the most important damage factors in pome fruit orchards. Currently utilizing resistant varieties and rootstocks are introduced as most important way to fight against these bacteria. Present study aimed to evaluate the resistance rate and study the induced biochemical changes in four pear vigorous rootstocks including Konjuni, *P. betulifolia*, Dargazi and Gh1 rootstocks *in vitro* conditions. For this purpose, each four rootstocks explants inoculated with a mixed of *Erwinia amylovora* strains. Induced morphological and biochemical changes in rootstocks were evaluated at 24 hours intervals for 4 days. According to results, Dargazi and *P. betulifolia* rootstocks were more resistant than other two rootstocks *in vitro* conditions and exhibited lowest necrosis percentage. Also, activity of antioxidant enzymes including peroxidase and polyphenol oxidase in these two rootstocks increased more than Konjuni and Gh1 rootstocks. In Dargazi rootstock, polyphenol oxidase had more activity whiles in *P. betulifolia* rootstock, peroxidase enzyme had more activity. Totally, based on results of present study, Dargazi and *P. betulifolia* rootstocks could be introduced as resistant and semi-resistant rootstocks and Konjuni as the most sensitive rootstock to fire blight disease.

Key Words: Dargazi, Peroxidase, Polyphenol oxidase, *P. betulifolia*.

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