10 ABSTRACT

The subject of this study was to evaluate the effect of abiotic elicitor on rutin production in callus and suspension cultures of buckwheat. The cultivar of buckwheat used for this research was *Fagopyrum esculentum* Moench *var. Bambi*, cultivated in Murashige and Skoog nutrient medium with the addition of growth regulator 2,4-dichlorfenoxyacetic acid (2,4-D) in concentration of 1 mg/l. The elicitor used in this study was a solution of methylviologen, 1 ml of it was added to the cultures in three different concentrations: c_1 = 100.0 mg/100 ml, c_2 = 10.0 mg/100 ml and c_3 = 1.0 mg/100 ml. The elicitor was affecting the cultures for 6, 12, 24, 48, 72 or 168 hours. After the defined period of time, cultures were collected, dried out and stored for further analysis of rutin content. To control samples (without elicitor treatment) 1 ml of ethanol 96% was added and they were collected after 6, 24, 72 or 168 hours. Releasing of rutin into the nutrient medium was also investigated. Rutin content in each sample of cultures and in each sample of nutrient medium was later determined by HPLC.

Any significant increase in the production of rutin was not observed in this study. The maximum amount of rutin detected was 0.1 mg/g DW, thus the lowest quantity detectable, and was found in suspension cultures in three cases; after the addition of methylviologen in c_1 concentration when collected after 168 hours, and then in cultures after 48 and 168 hours of cultivation with the elicitor in c_3 concentration. Release of rutin to the nutrient medium was not detected in any sample at all.

Therefore, the positive effect of methylviologen elicitation on *in vitro* cultures of buckwheat variety *Bambi* and their rutin production was not confirmed in this study.