

ABSTRACT

The aim of this work was to investigate the effect of pyrazine derivative, 1-octyl-3-(pyrazin-2-yl)urea, as an abiotic elicitor on the production of flavonoid rutin in *in vitro* cultures of *Fagopyrum esculentum* Moench., Cultivar *Bamby*. Suspension and callus cultures were cultivated on Murashige and Skoog nutrient medium (MS) with the addition of 2,4-dichlorophenoxyacetic acid (2,4-D) as growth regulator at a concentration of 1 mg/l.

The elicitor solution was added to the cultures at three 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 monitored at six time intervals: 6, 12, 24, 48, 72 and 168 hours. To control samples 1 ml of ethanol 96% was added instead of elicitor solution and samples were collected after 24 and 168 hours. Samples were taken at given time intervals and dried. Subsequently, the rutin content was monitored by HPLC. The rutin release into the nutrient medium was also tested.

During the experiment on the callus cultures no statistically significant increase in rutin production after elicitor treatment was observed. But elicitor increased rutin production in suspension cultures after treatment in all tested concentrations. The calluses always released rutin into the nutrient medium. The rutin content in the media ranged from 53,4 to 184,3 $\mu\text{g/ml}$.

The maximum rutin content (0,11 mg/g DW) was detected in the suspension culture after 12 hours of elicitor application at a concentration c_2 (10,0 mg/100 ml), related to a 24-hour control (0,06 mg/g DW). At 12 hours sampling the increased rutin content was always detected. A higher rutin production was also observed after 6, 48 and 72 hours of elicitor treatment at a concentration c_2 .

Elicitor-1-octyl-3-(pyrazin-2-yl)urea had the positive effect on rutin production only in suspension cultures of *Fagopyrum esculentum* Moench., Cultivar *Bamby*. In callus cultures elicitor stimulated the rutin release into the medium.