

# Evaluation of the Oxidative Burst in Suspension Cell Culture of *Phaseolus vulgaris*

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Plants respond to the attack of pathogens with the oxidative burst, a production of reactive oxygen species (ROS). In this work a cell culture suspension of *Phaseolus vulgaris* was used to investigate the oxidative burst triggered by a conidia suspension of different races of *Colletotrichum lindemuthianum*. As a defence response of the cells a two-phase peak was observed with all used races of *Colletotrichum lindemuthianum*, varying only in the produced amounts of hydrogen peroxide. Findings with additives such as superoxide dismutase (SOD), diphenyleneiodonium (DPI) and catalase gave rise to the conclusion that more superoxide radicals were produced than be detectable with Amplex<sup>®</sup> Red as hydrogen peroxide. It is assumed that the conversion of the superoxide radical is spontaneous and not driven via a cell-derived superoxide dismutase. The addition of low-molecular cell wall components (ergosterol, glucosamine, galactosamine) showed clearly that compounds like this act as elicitors and thus are involved in triggering the burst. Furthermore, an evaluation of the metabolizing capacities of hydrogen peroxide of the suspension culture cells revealed the enormous capacity of the cells to detoxify this ROS.

*Key words:* Hydrogen Peroxide Detection, Oxidative Burst, *Phaseolus vulgaris* Suspension Cell Culture