

# Indole-3-acetic acid control on acidic oat cell wall peroxidases

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Incubation of oat coleoptile segments with 40  $\mu$ M indoleacetic acid (IAA) induced a decrease of 35-60% in peroxidase activity at the cell wall compartment. Treatment with IAA also produced a similar decrease in the oxidation of NADH and IAA at the cell wall. Isoelectric focusing of ionic, covalent, and intercellular wall peroxidase fractions showed that acidic isoforms (pI 4.0-5.5) were reduced preferentially by IAA treatment. Marked differences were found between acidic and basic wall isoperoxidases in relation to their efficacy in the oxidation of IAA. A peroxidase fraction containing acidic isoforms oxidized IAA with a  $V(\max)/s_{0.5}$  value of  $2.4 \times 10^{-2} \text{ min}^{-1} \cdot \text{g fw}^{-1}$ , 4.0 times higher than that obtained for basic peroxidase isoforms ( $0.6 \times 10^{-2} \text{ min}^{-1} \cdot \text{g fw}^{-1}$ ). In contrast, basic isoforms were more efficient than acidic isoperoxidases in the oxidation of coniferyl alcohol or ferulic acid with  $\text{H}_2\text{O}_2$  (5.6 and 2.1 times, respectively). The levels of diferulate and lignin in the walls of oa