Title Spectroscopic and kinetic studies of pear PPO Inactivation by 4-hexylresorcinol

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Abstract

4-hexylresorcinol (4-HR) is increasingly used as an anti browning agent. Exact knowledge of its mechanism of action is therefore of great interest. 4-HR can affect browning reactions acting at different levels on different polyphenoloxidase (PPO) isoenzymes. In the present work we present additional evidence of the inactivatory effects of 4-HR on pear PPO. 4-HR inactivates PPO in a pH dependent manner, pH values of around 4-HR being optimal for the inactivation reaction. This reaction is also strongly dependent on the 4-HR concentration as would be expected for a bimolecular reaction. Finally, spectroscopic studies show that 4-HR and ascorbic acid interaction with PPO products are very different: only ascorbic acid, but not 4-HR, qualitatively modifies absorption spectra of PPO products, pointing to a direct interaction of ascorbic acid, but not of 4-HR, with PPO products.