

Turkish Journal of Agriculture and Forestry



Turkish Journal

of

Agriculture and Forestry

Characteristics of Polyphenol Oxidase in Hale Haven Paches

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 [Keywords](#)
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Abstract: The characteristics of polyphenol oxidase (PPO) from "Hale Haven" peaches were investigated. "Aceton Powder" was first prepared from peaches at three different maturity stages, namely unripe, half-ripe and fully ripe. The optimum pH, Michaelis constant (Km), maximum velocity (Vmax) as well as thermal inactivation of enzyme activity were studied with the enzyme solution prepared from "Aceton Powder". According to the degree of maturity, the pH optimum of PPO was between 6.0 and 6.5. The enzyme from fully ripe peaches showed a Km of 14.3 mM for catechol and Vmax of 1.25 OD min⁻¹ mL⁻¹ at pH 6.8. The thermal inactivation kinetics of enzyme was studied at 70 °C. The heat inactivation curve for each enzyme extract consisted of an initial steep straight line, and a final straight line with a shallow slope. It was therefore concluded that two isoenzymes of PPO with different resistances were present in peaches. The initial line represented inactivation of heat-labile enzyme and second heat-resistant enzyme. The inactivation of the heat-resistant fraction at 70 °C followed a first order reaction kinetics. The rate constants were 20.36, 23.17 and 19.66.10⁻² .min⁻¹ for unripe, half-ripe and fully ripe peaches, respectively. The proportion of heat-resistant portion in total activity was estimated by extrapolating the heat resistant curve to zero time. These values were 83%, 48% and 55% of total enzyme activity for unripe, half-ripe and fully ripe fruit, respectively.

Turk. J. Agric. For., **22**, (1998), 261-266.

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