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Characterization of Polyphenol Oxidase from Jerusalem Artichoke (*Helianthus tuberosus*)

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Abstract: Polyphenol oxidases (PPO) in Jerusalem artichoke (*Helianthus tuberosus*) skin and flesh were extracted and purified through $(\text{NH}_4)_2\text{SO}_4$ precipitation, dialysis and gel filtration chromatography.

The samples obtained from ammonium sulfate precipitation and dialysis were used for the characterization of crude skin and flesh PPO. Optimum pH values were 7.5 for skin PPO and 8.0 for flesh PPO with 50 mM catechol. The optimum temperatures for skin and flesh PPO were 25 °C and 30 °C respectively with catechol. Six inhibitors were tested in the study and the most effective inhibitors were found to be sodium azide and thiourea for both flesh and skin PPO. K_m and V_{max} values were 5.09 mM and 363.6 unit/min.ml for skin PPO and 4.03 mM and 714.2 unit/min.ml for flesh PPO respectively with 50 ml catechol substrate. Thermal inactivation data indicated that apparent activation energies with catechol substrate were 29.34 kcal/mol for skin PPO and 42.56 kcal/mol for flesh PPO.

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