

Purification and properties of pectinesterase from soursop (*Anona muricata*) pulp

ABSTRACT

Two forms of pectinesterase were purified using the techniques of ammonium sulphate fractionation, ion-exchange chromatography and gel filtration. PE I had a specific activity of approximately 4 units mg⁻¹ (43-fold), that of PE II was 6.4 units mg⁻¹ (229-fold). These pectinesterases (PE I and PE II) had approximate molecular weights of 29 100 and 24 100, respectively, as estimated by gel filtration, and 31 000 and 28 000, respectively, as estimated by sodium dodecyl sulphate polyacrylamide electrophoresis. The optimum temperature for enzyme activity was shown to be 60 °C for both PE I and PE II. The activation energies of PE I and PE II were calculated as 36 kJ mol⁻¹ and 42 kJ mol⁻¹, respectively. The optimum pH values for both pectinesterases lie within the range 7.0-8.0. The K_m value for PE I was 0.52 mg ml⁻¹ and 0.0843 mg ml⁻¹ for PE II. PE I had a maximum velocity (V_{max}) of 154 mol mg⁻¹ min⁻¹, and PE II a V_{max} of 726 mol mg⁻¹ min⁻¹.

Keyword: Pectinesterase; Purification; *Anona muricata*