

Thermodynamic functions were calculated according to the following relationships (4):

$$\Delta G^\ddagger = \Delta H^\ddagger - T \Delta S^\ddagger,$$

$$\Delta H^\ddagger = E_a - RT,$$

$$\Delta S^\ddagger = 4.576 (\log K - 10.753 - \log T + E_a/4.576 T),$$

and K (in sec^{-1}) = $V_{\text{max}}/\text{mg of Enzyme} \times \text{molecular weight} \times 10^{-3} \text{ mmol}/\mu\text{mol} \times 1 \text{ min}/60 \text{ sec}$, where the molecular weight of the enzyme is expressed in mg/mmol . Activation energy (E_a) was calculated from the Arrhenius equation by the method of least squares. All Arrhenius plots were linear over the range of temperature used.