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Effect of some factors on enzymatic activity of catalase in maize (*Zea mays* L.)

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Abstract: Catalase (EC 1.11.1.6), an antioxidant enzyme, has been screened in different plants. The objective of this study was to evaluate the activity, kinetic behavior, and the effect of some factors : pH, temperature, and Zn on catalase activity in *Zea mays* stalks (6 day old). The results showed that catalase exhibited optimum activity at pH 7.0 using 0.05M phosphate buffer and the optimum temperature at 40°C, also the results displayed that the value of Michaelis-menten constant (K_m) for H_2O_2 in these conditions equalled 0.2 M. This study showed that kernels germination using different concentrations of zinc chloride (0; 1; 3 and 6 mM) increased the enzymatic activity and the increase was correlated with the concentration, and 9 mM caused inhibitory effect on germination, while the incubation of stalks (6 day old-distilled water was used for germination and growing) for 24h in different zinc concentration (1; 3; 6 and 9 mM) reduced the enzymatic activity; the most inhibitory effect was at 9 mM.
Key words: catalase; *Zea mays*; pH; temperature; kinetic; K_m; zinc.

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