

Supplementary document

Effect of Zinc ions instead of copper ions in nanoflowers formation

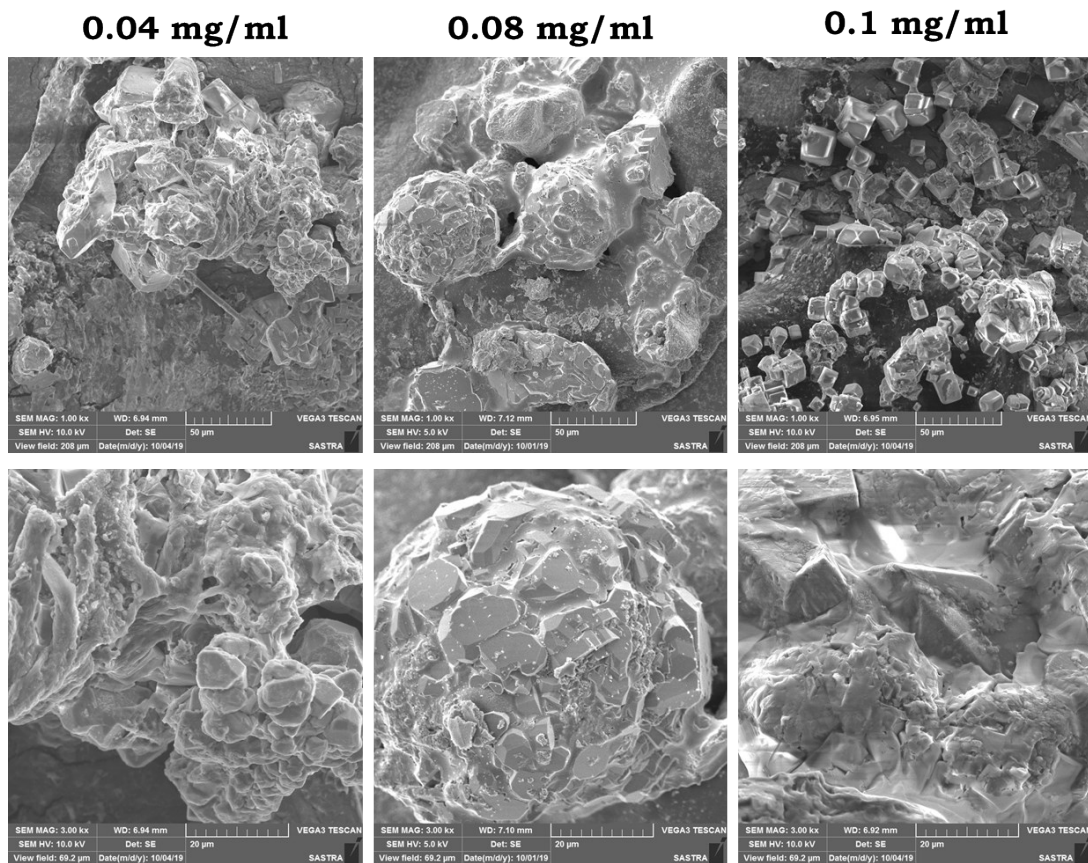


Figure S1. Scanning electron micrographs of tyrosinase enzyme incubated with zinc chloride solution at various enzyme concentrations shows absence of defined microstructures (magnifications at 1000X and 3000X)

Enzyme kinetics:

To estimate the enzyme kinetics, oxidation of L-DOPA to Dopachrome was observed as one of the properties of tyrosinase enzyme is. Kinetic parameters were studied using various concentrations of L-DOPA (1- 5 mM) to react with free enzyme and NF (equivalent to 10 $\mu\text{g/mL}$) in phosphate buffer solution (pH 7). Samples were collected at regular intervals of time (0-5

minutes) and absorbance was recorded for dopachrome produced at 480 nm. Lineweaver-Burk graph was plotted for absorbance versus time and corresponding K_m and V_{max} values were calculated against standard graph for known concentrations of Dopachrome as a calibration graph.

Initially, the rate of reaction was calculated from polynomial equation in absorbance vs time plot for individual substrate concentrations. The K_m and V_{max} values were obtained from LB plot where the linear equation ($y=ax+b$) demonstrates intercepts a & b corresponding to K_m/V_{max} and $1/V_{max}$ respectively in the equation given below.

Enzyme kinetics was estimated using Lineweaver Burk Plot (Figure S1) with below mentioned equation:

$$\frac{1}{V_o} = \frac{K_m}{V_{max}} * \frac{1}{[S]} + \frac{1}{V_{max}}$$

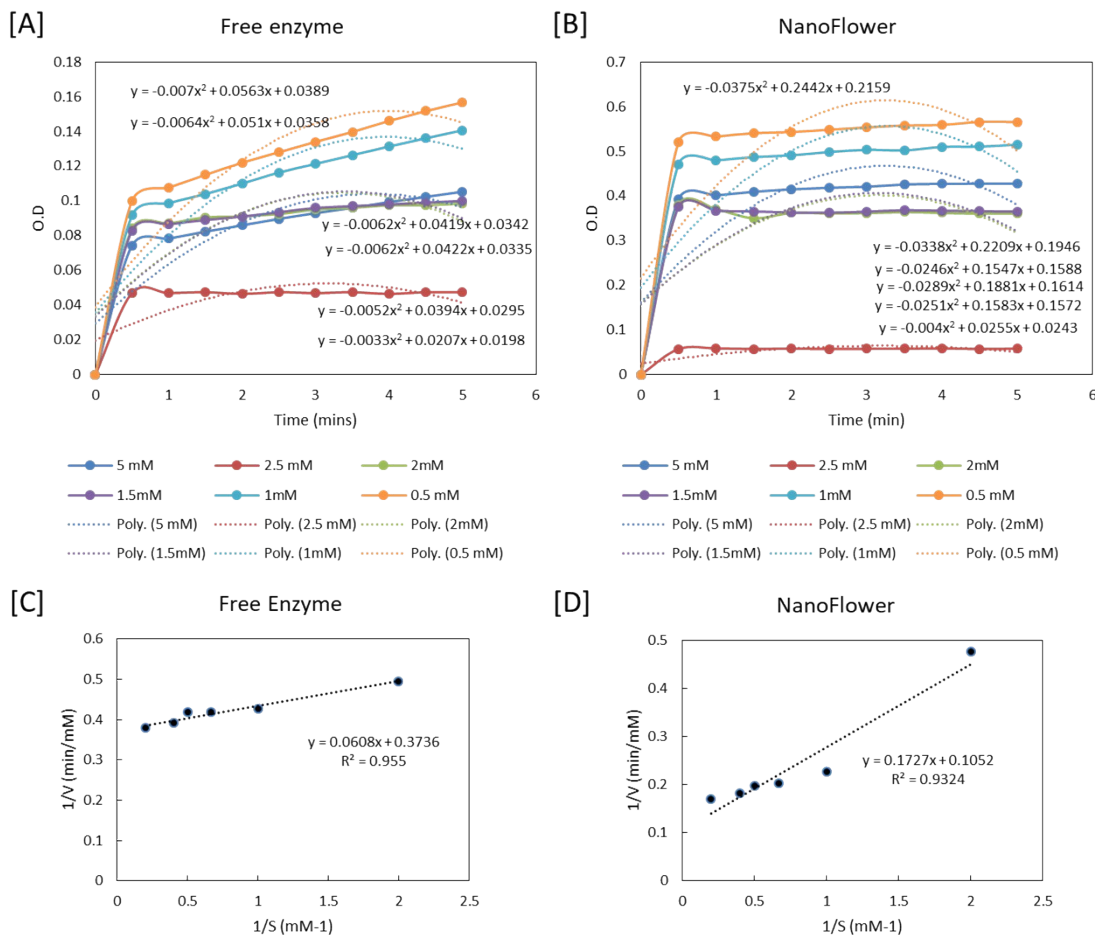


Figure S2. [A &B] Absorbance vs Time plot; [C & D] LB plot for Free enzyme and nanoflowers