

SUPPLEMENTARY INFORMATION

**Indicators for suicide substrate inactivation: A kinetic investigation**

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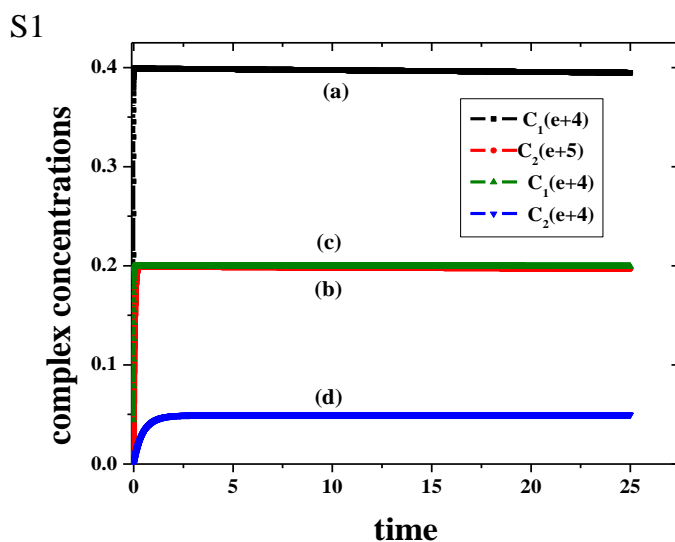
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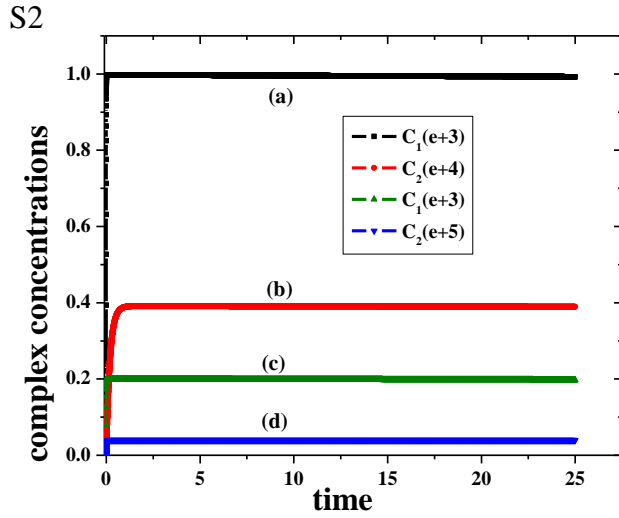
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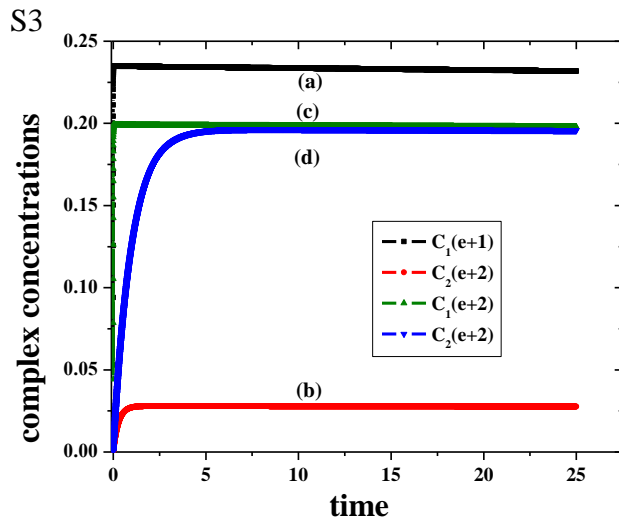
The usual trend is to apply QSSA to a system with high substrate concentration. But, QSSA, i.e., steadiness in intermediate concentration, may even be achieved at high and even comparable enzyme-substrate ratio. Whether a system will attain a steady state depends not only on the high substrate concentration, but also on the rate constants of the individual steps. This can be shown analytically. The system concerned here attains steadiness (QSSA applicable) irrespective of any substrate-enzyme ratio, for the different cases (1-16) shown. All these have been computationally checked. A few observations are displayed in figures 4A, 4B and 4C (additional figures).



**Figure S1.** Temporal profiles for intermediate complexes ( $C_1$ ) and ( $C_2$ ) for enzyme excess cases (Case 2 and Case 3) showing QSSA for the intermediates. Profiles (a) and (c) for  $C_1$  while (b) and (d) for  $C_2$ , in cases 2 and 3 respectively.



**Figure S2.** Temporal profiles for intermediate complexes ( $C_1$ ) and ( $C_2$ ) for comparable (same here) substrate enzyme concentration cases (Case 5 and Case 7) showing QSSA for the intermediates. Profiles (a) and (c) for  $C_1$  while (b) and (d) for  $C_2$ , in cases 5 and 7 respectively.



**Figure S3.** Temporal profiles for intermediate complexes ( $C_1$ ) and ( $C_2$ ) for substrate excess cases (Case 10 and Case 15) showing QSSA for the intermediates. Profiles (a) and (c) for  $C_1$  while (b) and (d) for  $C_2$ , in cases 10 and 15 respectively.