Generalized QSSA method for stiff metabolic system

양경원, 최준원, 이태용*
한국과학기술원
(tylee@kaist.ac.kr*)

Due to the complexity of metabolic system, its dynamic model can only be handled either numerically or approximately. Among the various solution methods, quasi-steady state approximation method has an advantage of alleviating stiffness of the dynamic model. To apply QSSA correctly, the variable and parameter should be carefully scaled. In classical Michaelis-Menten type reaction, we set small parameter as ratio of initial values of enzyme to substrate. Unfortunately this parameter can not be applied other complex metabolic system, small parameter must be defined on a case-by-case basis. In this study, we simplify some modified Michaelis-Menten type reactions by QSSA with derivation of small parameter to generalize simplification for common metabolic system.