

A Simple Web-Based Application for Visualization of Biochemical Reactions

Milen Kolev Borisov
Institute of Mathematics and Informatics
Bulgarian Academy of Sciences
milen_kb@math.bas.bg

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There are many software applications for simulation and analysis of biochemical reactions and their dynamics. Some of them are specially developed for this purpose like *JWS Online* [1] and *COPASI* [2], and many other computer algebra systems like *MATLAB* and *Mathematica* can also be used for such an analysis. What is common between them is that they provide too many features for analyzing biochemical reactions and are thus too complicated for the user who wants to see only the dynamics of the reactions.

In this work we demonstrate a simple web-based application for visualization of the dynamics of biochemical reactions. The user introduces the reactions, which are supposed to be elementary chemical reactions, with stoichiometric coefficients equalling to one. Then the reactions are converted into a system of ordinary differential equations (ODEs) under the mass action law. Next, the ODE system is solved and the results are displayed to the user.

The application is developed using the *SmoWeb* platform [3], which is an open-source web computational platform developed in Python. It runs on the web and does not require installation of any software by the user. All the computations are performed in the Public Web Cloud.

References

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