Abstract

Advancement of powerful biological technology has caused to achievement to numerous omic data that possibility of using algorithmic methods in analysis and optimizing of biological system
has provided beside advancement of calculative biology. In this study, optimizing calculative instrument of microbial metabolism is extended on base of differential evolutionary algorithm with vision from bi-level optimizing functions. The outcome algorithm has been used for optimizing of succinic acid microbial production. The result shows the algorithm can reproduce scenario of metabolic engineer in less calculative time which were previously produced by other bi-level microbial optimizing methods, on the base of linear programming. Also the algorithm has adjusting parameters so that user has the capability of collation and adjustment with studying problem. In addition, it provided possibility of using non-linear goal function in optimizing on base of differential evolutionary algorithm and also possibility of finding strategy of metabolic engineer that cause to efficiency of optimizing production in microbial system.

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Index Terms

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Differential evolutionary algorithm
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