# B-P193. Microbial Biofuel Cell Based on Saccharomyces Cerevisiae Modified with Polypyrole

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As demand for energy increases, society governments and conscious industries seek alternatives renewable energy sources to preserve earths' natural resources. One of such alternatives are microbial biofuel cells (MBFC). It is an electrochemical device which converts chemical energy into electric power by using electric charge derived from microorganisms-catalyzed reactions [1,2]. In *Saccharomyces Cerevisiae* metabolic processes, the substrates from wastewater and food industry waste can be used and electric charge from such reactions is generated in an anode of the electrochemical cell [3]. MBFC efficiency are related to the rate at which charge is transferred from the microorganisms.

To enhance the performance of the MBFC based on *S.Cerevisiae* charge transfer rate from cells to anode has to be increased. To achieve this, scientists try to develop special conductive electrode materials or modify cells with electrically conductive polymers.

In this research yeast cells were modified with 9, 10-phenanthrenequinone and to further increase charge transfer polypyrole layer inside cells periplasm was formed. Constructed bioelectrochemical system was compared to non-modified system and showed more than 4 time increase in generated current.

In conclusion *Saccharomyces Cerevisiae* modified with 9, 10-phenanthrenequinone and polypyrole can be applied in the development of microbial biofuel cell.

***Keywords:*** *microbial biofuel cell, Saccharomyces Cerevisiae, 9, 10-phenanthrenequinone, polypyrole, double modification.*

***References:***

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