

## Induction of Intracellular Glucose Oxidase outside the Cell

Kristine Museliani<sup>\*(1)</sup>, Edisher Kvesitadze<sup>(2)</sup>, Tamriko Khobelia<sup>(3)</sup>, Khatia Sichinava<sup>(4)</sup>

(1) Biologica Ltd, Tbilisi, Georgia.

(2) Educational Center “Biomed”, Georgian Technical University, 77a Merab Kostava, Tbilisi, Georgia.

(3) Educational Center “Biomed”, Georgian Technical University, 77a Merab Kostava, Tbilisi, Georgia.

(4) Educational Center “Biomed”, Georgian Technical University, 77a Merab Kostava, Tbilisi, Georgia.

\*e-mail: [kmuse2015@agruni.edu.ge](mailto:kmuse2015@agruni.edu.ge).

**Key words:** intracellular, enzyme, culture, biosynthesis, glucose oxidase

**Abstract.** The range of Intracellular Enzymes is rather high, and often organisms synthesize enzymes inside of a cell without developing them outside it, into the liquid culture. In this work, it is shown by us that by adding various salts with Mulberry root extract into the liquid culture, it is possible to achieve the Intracellular Enzyme appearing outside of a cell in the liquid culture. Of course, various organisms will react to various salts in different ways, but in general, such an approach gives positive results. *Aspergillus Niger* – an organism producing Intracellular Glucose Oxidase - was taken as an example. For induction of the enzyme to the outside the cell, we have used liquid media with Mulberry root extract and various salts (Table 1), which were added to the culture medium with various concentrations. Activity of glucose oxidase [3-6] was measured in liquid culture.

The certain salts like  $\text{Ca}(\text{NO}_3)_2$  induce the discharge of glucose oxidase from the cell into the liquid culture. It is also worth noting that different salts affect the induction of glu-cose oxidase differently, but  $\text{Ca}(\text{NO}_3)_2$  being the most effective among them. Later it was shown, that by increasing  $\text{Ca}(\text{NO}_3)_2$  salt, the induction effect of plant extract increases up until the concentration of 0.3 mg/ml, and by increas-ing the concentration of  $\text{Ca}(\text{NO}_3)_2$  above 0.3 mg/ml, the induction effect starts to drop rapidly..

Received May, 2016, BULLETIN OF THE GEORGIAN NATIONAL ACADEMY OF SCIENCES vol. 10, no. 2,  
[http://science.org.ge/newsite/bnas/t10-n2/19\\_Muselian.pdf](http://science.org.ge/newsite/bnas/t10-n2/19_Muselian.pdf).

