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Data on thermostable β-glucosidase immobilized by Zn^{2+}

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ABSTRACT

In this article, the methods for detection of enzyme activity and protein concentration are described. The data of the calibration curves can be used for a further understanding on the assays of enzyme activity measured with *p*-nitrophenyl-β-D-glucopyranoside (*p*NPG) or cellobiose as the substrate. In addition, the data presented provides an analytic method for measuring protein concentration in mixed samples.

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Specifications table

Subject area	Biology
More specific subject area	Enzyme Eng&Proteins
Type of data	Figure
How data was acquired	Using an absorbance microplate reader (SpectraMax190, Molecular Devices, LLC, Sunnyvale, CA)
Data format	Raw and analyzed data
Experimental factors	Assays of enzyme activity and protein concentration
Experimental features	The calibration curves of enzyme activity and protein concentration were offered
Data source location	Nanjing, China
Data accessibility	The data are available with this article

Value of the data

1. The data makes available to the detection of enzyme activity with *p*NPG as the substrate.
2. The data will guide the assay of enzyme activity for immobilized enzyme with cellobiose as the substrate.
3. The data presented can provide a calibration curve for measuring protein concentration in mixed samples.

1. Data

The calibration curve about the assay of enzyme activity measured with *p*NPG as substrate is given in Fig. 1. Glucose Assay Kit purchased from Shanghai Rongsheng Biological Technology Co., Ltd provides the calibration curve about the assay of enzyme activity with cellobiose as substrate. Meanwhile, Fig. 2 showed a calibration curve for the detection of protein concentration in mixed samples.

2. Experimental design, materials and methods

Enzyme activity of immobilized enzyme required was measured with *p*NPG as the substrate [1]. The pNP (0, 0.015, 0.030,0.0625, 0.125, 0.25, 0.50, 1.00 μmol/mL) was added to 1.5 mL tube containing

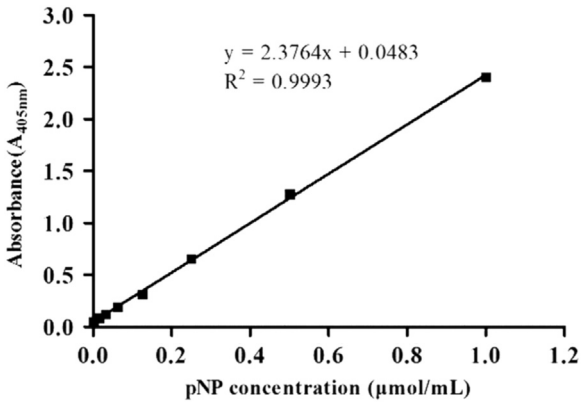

Fig. 1. The calibration curve about assay of enzyme activity with *p*NPG as the substrate.

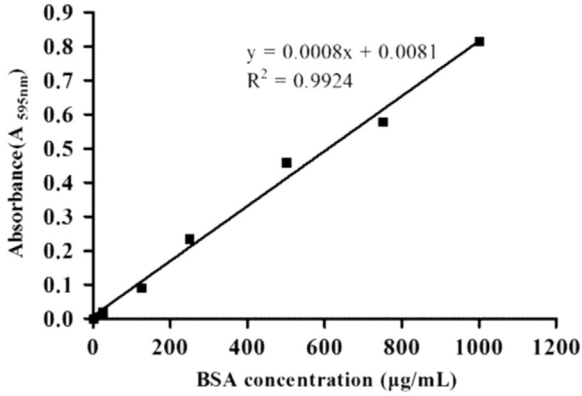

Fig. 2. The calibration curve about detection of protein concentration with bovine serum albumin (BSA) as the reference.

200 μL citric acid Na_2HPO_4 buffer (100 mM) and 600 μL Na_2CO_3 (1 M), The calibration curve was given by: y = 2.3764x + 0.0483 in Fig. 1, where x is the *p*NP concentration (μmol/mL) and , y is the absorbance of A405nm. Then the absorbance is calculated as enzyme activity from working curve. Enzyme activity of enzyme required was measured by cellobiose as the substrate. The calibration curve was provided by Glucose Assay Kit purchased from Shanghai Rongsheng Biological Technology Co., Ltd (Shanghai, China). And the calibration curve was given by:

$$y = \frac{A_1}{A_0} \times B$$

where y is the glucose concentration (mmol/L); A_0 is the absorbance of A_{505nm} from standard sample; A_1 is the absorbance of A_{505nm} from sample detected; B represented the concentration of standard sample (mmol/L). Then the absorbance is calculated as enzyme activity from working curve.

Protein concentration was detected by Bradford protein Assay Kit and the bovine serum albumin (BSA) was as the reference [2]. The mixture contained 200 μL Bradford protein Assay Kit and BSA (0, 25, 125, 250, 500, 750, and 1000 μg/mL) which was dissolved in deionized water. The calibration curve was given by: y = 0.0008x + 0.0081 in Fig. 2, where x is the BSA concentration (μg/mL), y is the absorbance of A_{595nm}. Then the absorbance is calculated as protein concentration from working curve.

Acknowledgements

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Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.03.105.

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