



# Polyphenol Oxidase Microplate Assay Kit

**Catalog # AS0013**

Detection and Quantification of Polyphenol Oxidase Activity in  
Urine, Serum, Plasma, Tissue extracts, Cell lysate, Cell culture media  
and Other biological fluids Samples.

This instruction must be read in its entirety before using this product.

For research use only, Not for use in diagnostic procedures.

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## I. INTRODUCTION

Polyphenol oxidase is a bifunctional, copper-containing oxidase having catecholase and cresolase activity. It is responsible for browning reactions through the phylogenetic scale.

The assay is initiated with the enzymatic hydrolysis of the Catechol by Polyphenol oxidase. The enzyme catalysed reaction productsquinone, can be measured at a colorimetric readout at 410 nm.

## II. KIT COMPONENTS

Component	Volume	Storage
96-Well Microplate	1 plate	
Assay Buffer	30 ml x 4	4 °C
Reaction Buffer	30 ml x 1	4 °C
Substrate	Powder x 1	4 °C
Stop Solution	20 ml x 1	4 °C
Plate Adhesive Strips	3 Strips	
Technical Manual	1 Manual	

**Note:**

**Substrate:** add 10 ml distilled water to dissolve before use.

## III. MATERIALS REQUIRED BUT NOT PROVIDED

1. Microplate reader to read absorbance at 410 nm
2. Distilled water
3. Pipettor
4. Pipette tips
5. Mortar
6. Ice
7. Centrifuge
8. Timer

#### IV. SAMPLE PREPARATION

##### 1. For cell and bacteria samples

Collect cell or bacteria into centrifuge tube, discard the supernatant after centrifugation, add 1 ml Assay buffer for  $5 \times 10^6$  cell or bacteria, sonicate (with power 20%, sonication 3s, interval 10s, repeat 30 times); centrifuged at 8000g 4°C for 10 minutes, take the supernatant into a new centrifuge tube and keep it on ice for detection.

##### 2. For tissue samples

Weigh out 0.1g tissue, homogenize with 1 ml Assay buffer on ice, centrifuged at 8000g 4°C for 10 minutes, take the supernatant into a new centrifuge tube and keep it on ice for detection.

##### 3. For serum, plasma samples or plant juice

Add 0.1 ml serum, plasma or plant juice into 0.9 ml Assay buffer on ice, centrifuged at 8000g 4 °C for 10 minutes, take the supernatant into a new centrifuge tube and keep it on ice for detection.

## V. ASSAY PROCEDURE

Warm Reaction Buffer and Substrate to 37°C before use.

Add following reagents into the microcentrifuge tubes:

Reagent	Sample	Control
Sample	50µl	--
Sample (boiled)	--	50 µl
Reaction Buffer	150µl	150µl
Substrate	50µl	50µl
Mix, put it in the oven, 37°C for 3 minutes. Then put it on ice immediately.		
Stop Solution	100 µl	100 µl
Mix, centrifuged at 10000g for 5 minutes, add 200µl supernatant into the microplate, record absorbance measured at 410 nm.		

## VI. CALCULATION

**Unit Definition:** one unit is defined as the OD value changed 0.01 per minute in the reaction system.

1. According to the protein concentration of sample

$$\begin{aligned} \text{PPO (U/mg)} &= (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) \times V_{\text{Total}} / (\text{C}_{\text{Protein}} \times V_{\text{Sample}}) / 0.01 / T \\ &= 233.3 \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) / \text{C}_{\text{Protein}} \end{aligned}$$

2. According to the weight of sample

$$\begin{aligned} \text{PPO (U/g)} &= (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) \times V_{\text{Total}} / (W \times V_{\text{Sample}} / V_{\text{Assay}}) / 0.01 / T \\ &= 233.3 \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) / W \end{aligned}$$

3. According to the quantity of cell or bacteria

$$\begin{aligned} \text{PPO (U}/10^4) &= (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) \times V_{\text{Total}} / (N \times V_{\text{Sample}} / V_{\text{Assay}}) / 0.01 / T \\ &= 233.3 \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) / N \end{aligned}$$

4. According to the volume of serum, plasma or plant juice

$$\begin{aligned} \text{PPO (U/ml)} &= (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) \times V_{\text{Total}} / (V \times V_{\text{Sample}} / V_{\text{Assay}}) / 0.01 / T \\ &= 233.3 \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Control}}) / V \end{aligned}$$

$C_{\text{Protein}}$ : the protein concentration, mg/ml;

W: the weight of sample, g;

V: the volume of serum, plasma or plant juice;

N: the quantity of cell or bacteria,  $N \times 10^4$ ;

$V_{\text{Total}}$ : the volume of sample, 0.35 ml;

$V_{\text{Sample}}$ : the volume of sample, 0.05 ml;

$V_{\text{Assay}}$ : the volume of Assay buffer, 1 ml.

T: the reaction time, 3 minutes.

## **VII. TECHNICAL SUPPORT**

For troubleshooting, information or assistance, please go online to [www.sabbiotech.cn](http://www.sabbiotech.cn) or contact us at [techcn@signalwayantibody.com](mailto:techcn@signalwayantibody.com)

## **VIII. NOTES**