Native Mushrooms Polyphenol Oxidase

Cat. No. NATE-0612

Lot. No. (See product label)

Introduction

Description	Polyphenol oxidase is a tetramer that contains four atoms of copper per molecule, and binding sites for two aromatic compounds and oxygen. The enzyme catalyses the o-hydroxylation of monophenol molecules in which the benzene ring contains a single hydroxyl substituent) to o-diphenols (phenol molecules containing two hydroxyl substituents). It can also further catalyse the oxidation of o-diphenols to produce o-quinones. PPO causes the rapid polymerization of o-quinones to produce black, brown or red pigments (polyphenols) that cause fruit browning. The amino acid tyrosine contains a single phenolic ring that may be oxidised by the action of PPOs to form o-quinone. Hence, PPOs may also be referred to as tyrosinases.
Synonyms	EC 1.14.18.1; Polyphenol oxidase; monophenol monooxygenase; Polyphenol oxidase I; chloroplastic

Product Information

Source	Mushrooms
Form	lyophilized powder
EC Number	EC 1.14.18.1
CAS No.	9002-10-2
Molecular Weight	128 kDa (Duckworth and Coleman 1970).
Activity	> 500 units per mg dry weight
Optimum pH	42528
Composition	The enzyme is a tetramer containing four gram atoms of copper per molecule (Jolley et al. 1974), and two binding sites for aromatic compounds including phenolic substrates. There is also a distinctly different binding site for oxygen, the copper site (Duckworth and Coleman 1970). The copper is probably in the cuprous state; inactivation of the enzyme is associated with increase in Cu2+. (Kertész et al. 1972). The amino acid composition has been determined. Extensive structural studies have been reported by Jolley et al. (1969); and Duckworth and Coleman (1970). See also Jolley et al. (1972, 1973, and 1974).
Specificity	A large number of parasubstituted catechols areoxidized (Duckworth and Coleman 1970).
Inhibitors	Compounds that complex with copper. The enzyme is also inhibited competitively by benzoic acid with respect to catechol and by cyanide with respect to oxygen (Duckworth and Coleman 1970).
Unit Definition	One unit causes an increase in the absorbance at 280 nm of 0.001 per minute at 25°C, pH 6.5, using L-tyrosine as substrate.

Storage and Shipping Information

Storage	Store at -20°C

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Stability	The lyophilized preparation is stable for 6-12 months when stored at-20°C.