

Lipoxidase, Enzyme Activity

Catalog	Unit
TBP0079-1000KU	1000 KU
TBP0079-5000KU	5000 KU

Product Details

Form: Freeze-dried

Solubility: Readily soluble in distilled water or dilute buffer

Stability: -20° C; -4° F

Activity: 10 U/mg protein

Protein: 60%

Unit Definition

One unit will cause an increase in A232.5 of 0.001 per minute at pH 9.0 at 25°C when linoleic acid is the substrate in 3.0 ml volume (1 cm light path). One A232.5 unit is equivalent to the oxidation of 0.12 μmol of linoleic acid.

Applications

Lipoxidase (EC 1.13.11.12) catalyzes the oxidation of polyunsaturated fatty acids containing cis,cis-1,4-pentadiene systems to form hydroperoxides. The degradation of the hydroperoxide by the lipoxidase seems to prevent the breakdown of amino acids and proteins which are associated with an odorous carbonyl compound which produces the beany flavor found in many legumes.

Lipoxidase is widely distributed, especially concentrated in the legumes. Soybeans have been found to have the highest concentrations while isoenzymes have been reported in cowpeas.

Reagents

1. 0.1 M ammonium hydroxide ammonium chloride buffer, pH 9.0
2. 1 mM Linoleic acid
3. 20 μl Lipoxidase diluted to 0.6 U/ml

Procedure

1. Set spectrophotometer (equipped with a strip chart recorder and temperature control) at 232.5 nm and 25°C
2. Into the quartz cuvettes pipette 2.9 ml ammonium hydroxide ammonium chloride buffer
3. Add 0.1ml of the enzyme solution to the test cuvette, mix, and record the rate of absorbance at 232.5 nm for 5 minutes.
4. Calculate the ΔE232.5nm/min from the initial linear portion of the curve.

Calculation

$$\text{Activity (U/mg)} = \frac{(\Delta E_{232.5\text{nm}/\text{min}})(\text{Total Vol.})(\text{Enz. Diln.})}{(27.4)(\text{Enz. Vol.})(\text{mg Enz./ml})}$$

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