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Product Information

Bromelain from pineapple stem

Product Number **B5144**
Storage Temperature -20 °C

Product Description

Enzyme Commission (EC) Number: 3.4.22.32
CAS Number: 37189-34-7
pI: 9.55¹

Bromelain is a cysteine endopeptidase with broad specificity for cleavage of proteins. Stem source bromelain should not be confused with fruit source bromelain, which is an aspartic endopeptidase. This product has been chromatographically purified to enrich the protein content for bromelain.

pGlu-Phe-Leu-p-nitroanilide (Product No. P 3169) is a chromogenic substrate for the assay of thiol proteinases such bromelain (also papain and ficin). Bromelain has a K_M of 0.30 mM with this substrate. Initial rates of hydrolysis can be measured spectrophotometrically at 410 nm using the molar extinction coefficient of p-nitroaniline ($E^M = 9,800$) at 410 nm.²

Bromelain impacts several important biological functions. It inhibits the biosynthesis of proinflammatory prostaglandins.³ It can reduce clotting efficiency by affecting fibrinogen.⁴

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml), yielding a clear, colorless solution.

Procedure

An assay of bromelain using the general thiol protease chromogenic substrate, pGlu-Phe-Leu-p-Nitroanilide is:

1. Prepare a reaction buffer of 2.5 ml of 0.1 M phosphate buffer, pH 6.5, containing 0.3 M potassium chloride, 0.1 mM EDTA, and 3 mM dithioerythritol.
2. Add 0.3 ml of 1-5 mM substrate in dimethyl sulfoxide.
3. Incubate 5 minutes at 37 °C.
4. Add 0.2 ml of a 133 ug/ml solution of bromelain in water.
5. Incubate at 37 °C until the desired color intensity is achieved.
6. The reaction can be stopped by the addition of 0.2 ml of 3 N hydrochloric acid.
7. Read the result spectrophotometrically at 410 nm.

References

1. Biochem., **3**, 48-55 (1964).
2. Filippova, I.Y., et al., L-Pyroglutamyl-L-phenylalanyl-L-leucine-p-nitroanilide--a chromogenic substrate for thiol proteinase assay. Anal. Biochem., **143**, 293-297 (1984).
3. Taussig, S. J., The mechanism of the physiological action of bromelain. Med. Hypotheses, **6**, 99-104 (1980).
4. Livio, M., et al., Drugs. Exptl. Clin. Res., **4(1)**, 49-53 (1978).

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