CZ0603_UG_EN_V2302

Feruloyl esterase 1A, *Butyrivibrio proteoclasticus*

*Bp*Fae1A (CE1)

Catalogue number	Presentation
CZ06031	1 mg
CZ06032	3 x 1 mg

Description

Feruloyl esterase 1A (*Bp*Fae1A), assigned the E.C. number 3.1.1.73, is a derivative of *Butyrivibrio proteoclasticus*. It catalyzes the hydrolysis of ester linkages present in hydroxycinnamic acids (including ferulic acid and p-coumaric acid) and diferulates (diFAs) found within plant cell walls. The enzyme's ability extends beyond the deconstruction of plant biomass, wherein it disconnects hemicellulose from lignin, facilitating the synthesis of a broad spectrum of novel bioactive components. These components have potential applications across a variety of industries, including food, cosmetics, and pharmaceuticals. The recombinant *Bp*Fae1A, purified from *Escherichia coli*, is a single-domain Carbohydrate Esterase family 1 (CE1) enzyme (see more details at www.cazy.org). The protein is supplied in a solution containing 35 mM NaHepes buffer (pH 7.5), 750 mM NaCl, 200 mM Imidazole, 3.5 mM $CaCl_2$, and 25% (v/v) glycerol, at a concentration of 1 mg/mL. Bulk quantities of this product can be made available upon request. To place an order, simply visit our website. We offer fast and secure shipping worldwide.

Electrophoretic Purity

The molecular integrity and purity of *Bp*Fae1A (CE1) were evaluated using sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE), followed by BlueSafe staining (MB15201) (Figure 1).

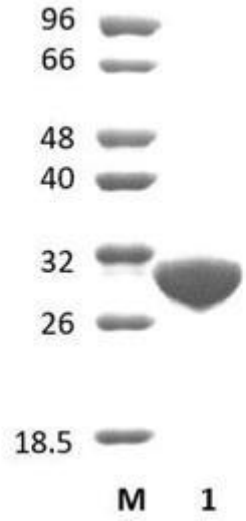

Figure 1. SDS-PAGE analysis of *Bp*Fae1A (CE1) was conducted in (Lane 1), employing a 14% polyacrylamide gel. The enzyme exhibits a band corresponding to a molecular weight of approximately 29,77 kDa. Lane M contains a Protein Marker for reference.

Storage temperature

The protein should be stored at -30°C to -15°C in a constant temperature freezer. The protein will remain stable till the expiry date if stored as specified.

Substrate specificity

*Bp*Fae1A (CE1) participates in the de-esterification of ferulate crosslinks between hemicelluloses and lignin.

Temperature and pH optima

The enzyme exhibits optimal activity within a pH range of 7.0-9.0 and at a temperature of 37°C. Maximal enzymatic activity is achieved at pH 8 and a consistent temperature of 37°C.

Specific activity

The specific activity of *Bp*Fae1A (CE1) was determined against pNP-Ferulate (pNPF) (6 mM), methyl ferulate (MFA), methyl caffeate (MCA), methyl sinapate (MSA) and methyl p-coumarate (MpCA) (12mM), under standard conditions (37 °C in 0.1 M of sodium phosphate buffer, pH 8.0) spectrophotometrically at 410 nm (pNPF) or 340 nm (other substrates). One unit of enzyme activity (1 U) is defined as the amount of enzyme required to release 1 µmol of product, per min, under standard conditions. The specific activity of *Bp*Fae1A (CE1) is denoted as 3.99 U/mg for pNPF, 48.3 U/mg for MFA, 8.57 U/mg for MCA, 12.4 U/mg for MSA and 14.7 U/mg for MpCA. This enzyme displays lipase and tannase activities.

Customer Support

Our dedicated customer support team is always ready to assist you with any questions or technical issues you may have. Reach us via email at info@nzytech.com.

Quality control assay

Protein purity is determined to be ≥90%, as assessed by SDS-PAGE and subsequent BlueSafe staining (MB15201).