



Pustulanase (β -glucanase) from metagenome environmental DNA

A thermostable β -1,6-endoglucanase developed from environmental DNA through metagenomics.

Product information

Available as freeze dried powder.
Activity: 3.2 U/mg powder, or 9.7 U/mg protein.
Store at a dry & cool place 4°C.

Enzyme activity

The enzyme has an alternative name, β -1,6-endoglucanase (E.C. 3.2.1.75), and makes random hydrolysis of 1,6-linkages in lutean, pustulan and 1,6-oligo-b-D-glucosides.

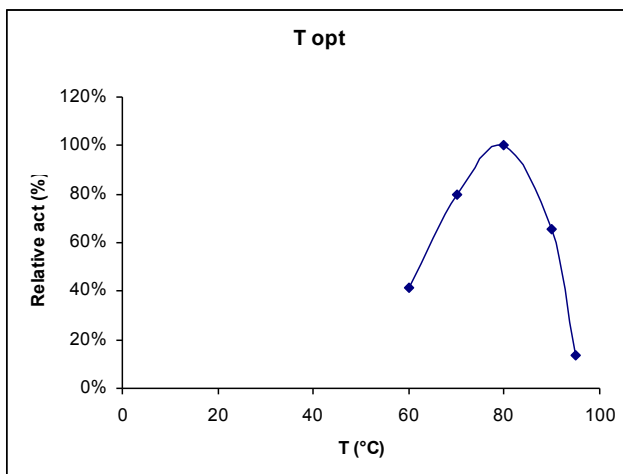
Assay

The standard assay for endoglucanase activity was done by incubating the enzyme at 80°C for 10 min, with 1 % (w/v) pustulan, as a substrate in 0.1M sodium phosphate buffer, pH 5.5. The reducing sugars released were detected by the dinitrosalicylic acid method using glucose as standard.

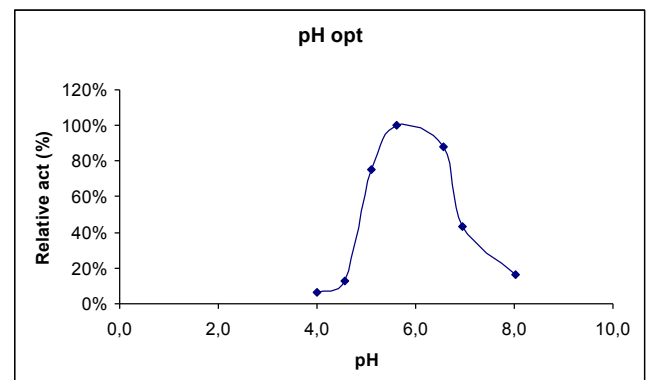
Unit definition

One unit (U) of enzyme activity is the amount that leads to the release of 1 mol reducing sugars per minute.

Temperature optimum

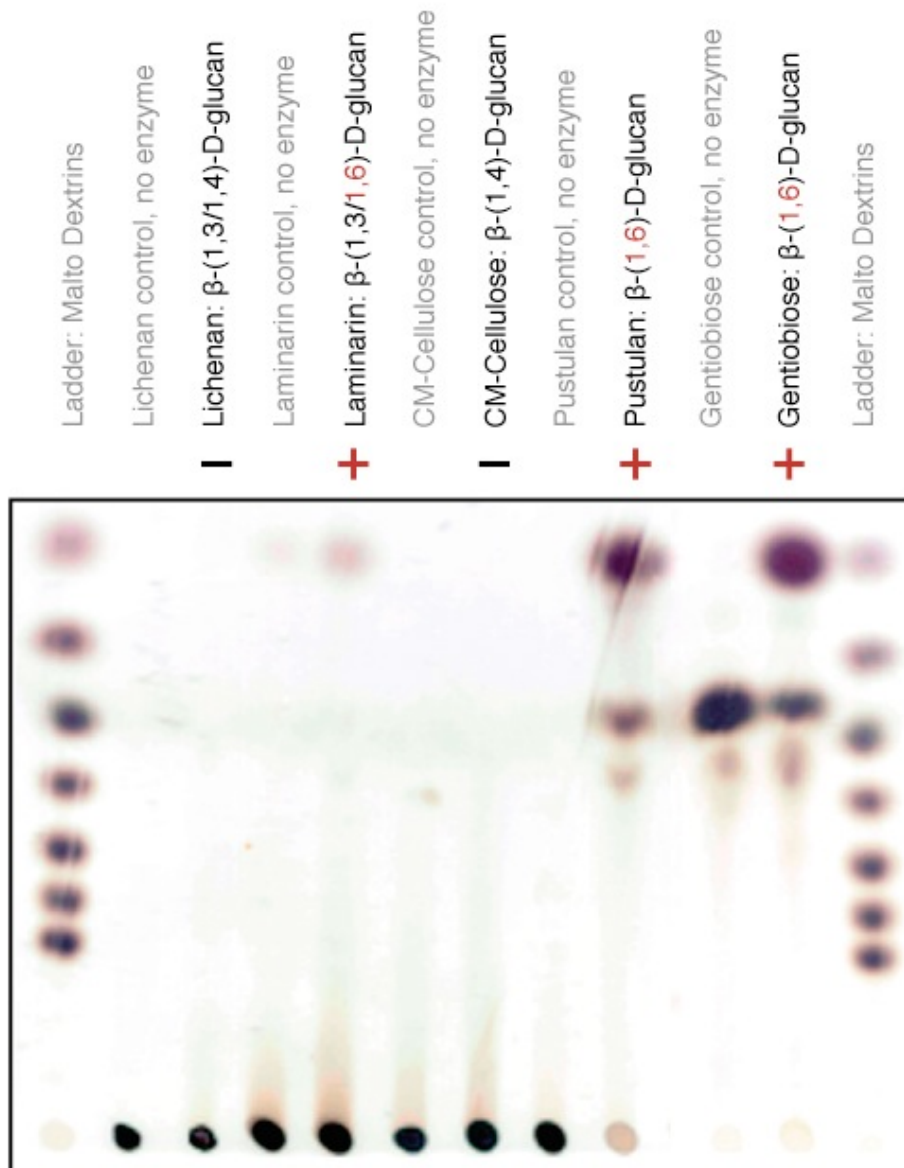


pH optimum



Enzyme specificity

The Cel136 enzyme hydrolyses β -glucan polysaccharides with β -(1,6) linkages such as Pustulan (β -(1,6)-D-glucan) and Gentiobiose (β -(1,6)-linked disaccharide) or β -glucans with mixed linkages, including β -(1,6) linkages, such as Laminarin (β -(1,3/1,6)-D-glucan) and Yeast β -glucan (β -(1,3/1,6)-D-glucan). Substrate specificity analysis (below) indicates that the enzyme does not cleave β -(1,3) or β -(1,4) linkages as it does not show activity on the β -glucans Lichenan (β -(1,3/1,4)-D-glucan) or CM-Cellulose (β -(1,4)-D-glucan).



TLC of reaction mixtures after incubation overnight at 70°C and pH 6,5

References

Beta Glucan from Baker's Yeast (*Saccharomyces cerevisiae*). Food Chemical Index, 7th Edition, Third supplement, p. 1686-1689. (2011) - includes assay for beta-glucan using the Cel136 product.

M. Danielson et al.: Enzymatic Method to Measure β -1,3- β -1,6-Glucan Content in Extracts and Formulated Products (GEM Assay), J. Agric. Food Chem. 58: 10305-10308 (2010).