

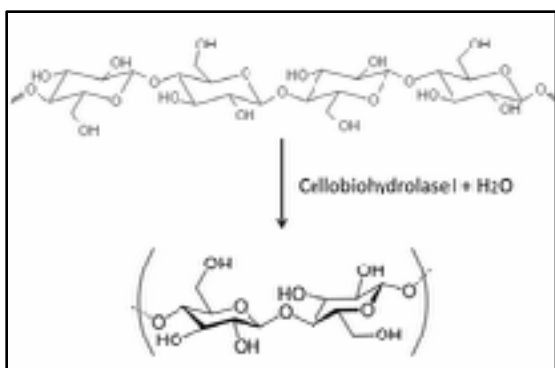
Exocellulase CBH I – Purified Enzyme

A recombinant cellobiohydrolase (commonly called an exocellulase) from *Hypocrea jecorina*

3/2014

Infinite Enzymes **CBH I** is an exocellulase (Cel6A: E.C.3.2.1.91) from *Hypocrea jecorina*. It is produced from a recombinant corn seed production system. It will be provided as an ammonium sulfate precipitate. Activity is determined using methyl-umbelliferyl beta-D cellobioside (MUC).

Cellobiohydrolase is an enzyme present in many fungi, but particularly wood rot fungi. It is a monomer of 59 kDa with a catalytic domain and a cellulose binding domain. The reaction adds water to the glucose bonds in cellulose (non-reducing ends of the chain), yielding cellobiose:



APPLICATION

Infinite Enzymes' Cellobiohydrolase can be used in combination with endocellulases and β -glucosidase to produce glucose from cellulose. Its activity is dependent on several factors including inhibitors in the substrate (pure cellulose versus plant-derived cellulose), enzyme dose, concentration of other enzymes, feedback inhibition of products, temperature and pH.

EFFECT OF TEMPERATURE AND pH ON ACTIVITY

Optimal temperature for this enzyme is approximately 45° C, although it functions from 37° C through 50° C. pH optimum is 5.0 – 6.0.

PRODUCT CHARACTERISTICS

Specific Activity 0.13 U/mg using MUC substrate. Purity: >95%

Infinite Enzymes' purified cellobiohydrolase (CBH I) is shipped as a liquid slurry of 10 mg/mL enzyme in sodium acetate buffer with 3.2M ammonium sulfate and 0.02% sodium azide. The enzyme is standardized in MUC activity units.

The enzyme is produced from recombinant maize that is grown under compliance with USDA regulatory guidelines. Unlike other commercially available cellulases, purified CBH I is being produced without typical impurities (other enzymatic side activities) found in fungal-produced enzymes.

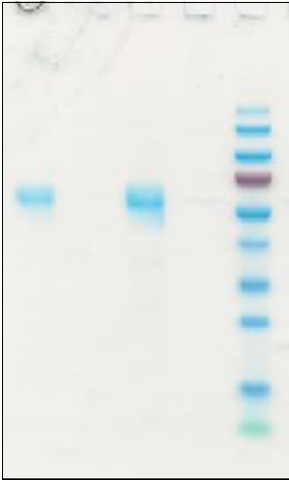
Table 1: Cellulase enzyme characteristics

	CBH I
Family	7–E.C.3.2.1.91
Native source	Fungal
Calculated MW	52500
Glycosylated native protein	Yes, primarily linker region
pI holoenzyme	4.51
pH optimum	5
Temperature optimum	45-50 °C
Bond cleaved	b-1,4-glycosidic
Mechanism	Retained anomeric configuration ¹
Substrates	Cellulose fibrils, purified cellulose preparations (Solka-floc, Sigmacell, Avicel)
Primary reaction products	Cellobiose (and other water-soluble short-chain cello-oligomers)

¹Source: (Schulein 2000); <http://www.expasy.ch/cgi-bin/lists?glycosid.txt>

Coomassie Blue stained SDS-PAGE gel of purified CBH I with MW standards

2 ug 4 ug MW markers



STORAGE CONDITIONS

The enzyme should be stored as a slurry at -20° C.