

Chitinase

Novel chitosan-cleaving enzyme with defined specificity for the production of chitosan-oligomers

Invention

Chitosan is a linear co-polymer of glucosamine (D) and N-acetyl-glucosamine (A) units. Enzymatic degradation of this co-polymer by chitinases or chitosanases leads to heterogeneous mixtures of oligomers, depending on the cleaving specificity of the enzyme used.

The invention provides a novel chitosan-cleaving enzyme with a strict specificity for cleavage of the sequence AD. This novel enzyme is named chitinase.

Examples of degradation products illustrate the effect. 1) chitosan example, 2-4) relevant degradation products: 2) chitinase AA; 3) chitinase DD; 4) chitinase AD

- 1) DDDAADDADAADAAADDAADDAADDDA
- 2) DDDA ADDADA ADA A ADDA ADDA A ADDADDA
- 3) D D DAAD D DADAADAAAD DAAD DAAAD DAD D DA
- 4) DDDAA DDDA DAA DAAA DDAA DDAAA DDA DDDA

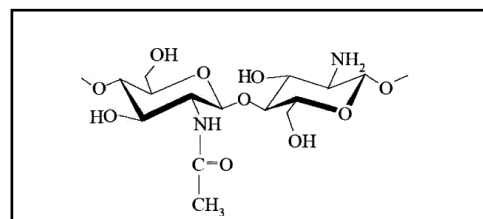
This novel chitinase leads to oligomers with blocks of D-residues at the non-reducing end and blocks of A-residues at the reducing end. This blockwise distribution of the acetyl residues greatly simplifies purification of defined, individual oligomers.

The invention provides the production and purification processes for the enzyme.

Current status

We offer a research collaboration with licensing option. About the patent situation, we would like to give the relevant information to you.

Key words: Chitosan, chitosan-cleaving enzyme, oligomers, chitosan degradation



part of the co-polymer – chitinase specifically cleaves this linkage between N-acetyl-glucosamine (left) and glucosamine (right)

Benefits

- Novel enzyme for chitosan degradation;
- Strict AD-cleaving specificity;
- Enzymatic production and purification process for defined oligomers from chitosan;
- Commercially attractive production process for the enzyme.

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