ISTITUTO ITALIANO
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TITLE

Thermostabilized Amadoriase I from *aspergillus fumigatus*

INVENTORS

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DESCRIPTION

The invention relates to a new-engineered Amadoriase enzyme with increased thermostability with respect to the wild-type enzyme.
The enzyme here obtained can be useful as deglycating agent in the food industry processes, where high temperature is necessary (e.g. milk pasteurization at 75-85°C for 10-15 seconds). The mutant is active up to 80-85°C differently from the wild type enzyme, which is active only at T < 50°C.
The new enzyme is obtained by using a combined computational and experimental approach. A computational method is used to identify amino acids that can be mutated to cysteines in order to introduce one or two disulphide bonds (i.e. cysteine-cysteine covalent bond) in the structure of Amadoriase I.
Then experiments proving the thermostability of the enzymes are provided to select the more efficient mutants.

APPLICATIONS

diabetes monitoring, food processing industry

KEYWORDS

Amadoriase, thermostabilized enzyme, aminoacid deglycation, Maillard reaction

BIBLIOGRAPHIC DATA

Thermostabilized amadoriases and uses thereof

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