CORIOLOPSIS GALLICA THERMOSTABLE LACCASE

KEYWORDS

- Laccase
- Enzyme
- Fermentation
- White-rot fungi

Collaboration type
License agreement
R&D collaboration

IP status
EP21199193 - 27/09/2021
PCT patent ongoing

Inventors
FLAHAUT Sigrid
SONGULASHVILI George

THE TECHNOLOGY IN A NUTSHELL

The new method of thermoresistant laccases production using white-rot fungus *Coriolopsis gallica*.

STATE OF THE ART

Laccases are a diverse group of multi-copper enzymes that oxidise a wide variety of organic and inorganic compounds. It is an economically important enzyme because of its ability to catalyze various oxidation reactions useful in industry.

Most laccases described in the literature were isolated from higher fungi, especially white-rot fungi belonging to the basidiomycetes. However, the extracellular level of the laccase enzyme produced by these fungi is low. Moreover, the high number of possible biotechnological applications of laccases, the thermostable and robust laccase of *C. gallica* in particular, and their potential uses in the environmental field necessitate industrial-scale production of active and stable laccase enzymes.

THE INVENTION

The inventors have introduced a new, thermostable laccase using an optimized method. The process involves submerged fermentation of a fungal strain called *Coriolopsis gallica* in a liquid fermentation medium within an agitated tank bioreactor. This allows for the production of high yields of laccase within a short period of time. As a result, the laccase produced is both robust against downstream processing and thermostable, with potential application in: a) Agrofood; b) Pharma; c) Environment & Energy; d) Materials & Engineering.

CONTACT

KNOWLEDGE TRANSFER OFFICE

Knowledge Transfer Office
ULB Research Department

George Songulashvili
+32 (0) 2650 72 86
george.songulashvili@ulb.be

ULB-KTO
ulbkto@ulb.be

www.ulbkto.be

Lyophilized *C. gallica* laccase
- 2±0.5 U/mg activity
- Half-life: 20 min in 80°C

KEY ADVANTAGES OF THE TECHNOLOGY

- Very high enzymatic resistance to heat
- Great stability over time during conservation, allowing to incorporate the technology into many industrial applications.

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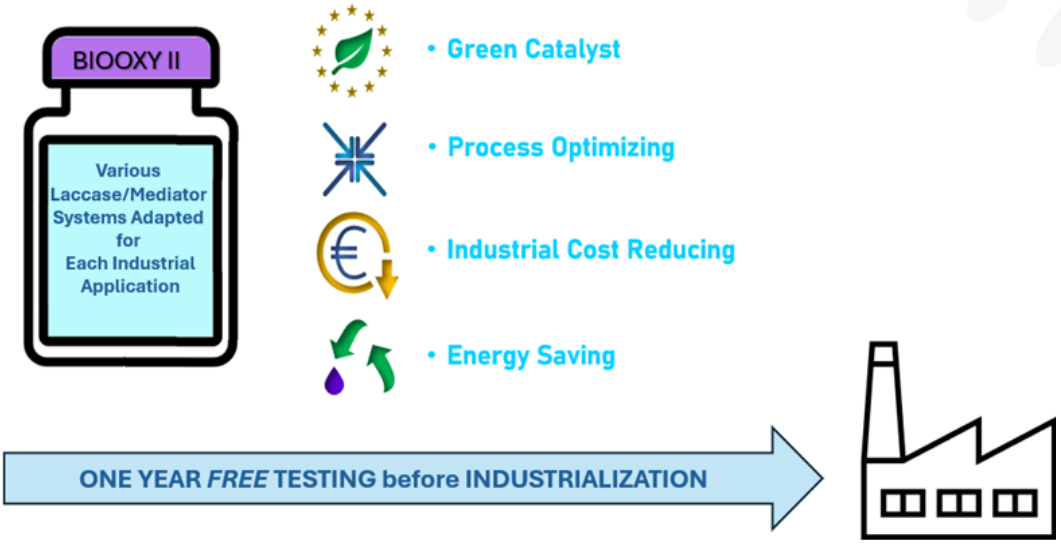
TECHNOLOGY READINESS LEVEL

1 2 3 **4** 5 6 7 8 9

POTENTIAL APPLICATIONS

- Bio-active molecule synthesis for pharma and agriculture
- Synthesis of bioactive natural products and their analogues
- Synthesis of antioxidant
- Water treatment
- Stabilization of food and beverage
- Lignocellulose pre-treatment
- Biosensors for detection of micropollutants

SPECIAL OFFER



THE INVENTORS

SF

Associated professor in microbiology at ULB. She has worked on several fundamental or applied research topics using lactic acid bacteria, microbial biofilms or fungal enzymatic production.

Prof. Sigrid Flahaut (Head of team)
***Laboratoire de microbiologie appliquée* - EBB**

Expertise in microbiology, biotechnologies, bioprocesses, biochemistry, applied enzymology, and innovation portfolio management. He has overseen various R&D programs, teams, and innovation portfolios, all centered around fungal protein and enzyme discovery. He has also experienced in developing new UPS and DSP bioprocesses and driving industrialization at larger scales.

Dr. George Songulashvili (Senior researcher, collaborator scientific at EBB) Fungal microbiologist

RELEVANT PUBLICATIONS

> Songulashvili et. al. Fungal Biology, 2016. doi.org/10.1016/j.funbio.2016.01.008
> Songulashvili et. al. Comptes rendus Biologies, 2015. doi.org/10.1016/j.crvi.2014.12.001

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