

exchange resins, as well as cation (VION KN-1) and anion (VION AN-1) exchange fibers. It has been shown that the examined sorbents, native and immobilized inulinases, do not exhibit any mutagenic, DNA-damaging, or cytotoxic activity, which makes them effective for use as catalysts in the food industry.

Acknowledgements: The study was supported by the Russian Foundation for Basic Research, project 16-34-01141 mol.a.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.1018>

Food & Feed Biotechnology

Microbial transglutaminase production using industrial food wastes



Izzet Turker¹, Mehmet Tokatli¹, Hilal Isleroglu^{1,*}, Banu Koc²

¹ Gaziosmanpasa University, Faculty of Natural Sciences and Engineering, Food Engineering Department, Turkey

² Gaziantep University, Fine Arts, Gastronomy and Culinary Arts, Turkey

E-mail address: hilal.isleroglu@gop.edu.tr (H. Isleroglu).

Utilization of industrial food wastes such as whey and molasses as an input ingredient for fermentation could be a feasible solution of some ecological problems. Although whey is considered as environmentally damaging by-product, it is a cheap source of carbon and nitrogen for the fermentation of some microorganisms. Similarly, molasses which is by-product of sugar refinery could be used as alternative to glucose-based media for fermentation processes. In this study, microbial transglutaminase (mTgase), an important enzyme used for improving food flavor, texture and appearance due to its protein cross-linking properties, was produced by fermentation of *Streptomyces mobaraensis* using a medium composed of whey and molasses at 30 °C and pH 6.0. Incubation processes were carried out in shaking incubator for 4 days at different shaking rates (100–200 rpm). Different concentrations of whey-molasses mixtures were used as fermentation medium. Also, different carbon and nitrogen sources such as yeast extract and pepton were added to the whey-molasses based media and effects of the composition of the fermentation medium on mTgase activity (Unit/ml) were investigated. According to the results, the highest mTgase activity was found as 0.051 ± 0.001 Unit/ml using 30 g molasses/1000 ml whey concentration in shaking incubator at 150 rpm.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.1019>

Application of *L. plantarum* O1 producer of plantaricin NC8 (PLNC8) in biopreservation of aquatic food products



Iva Canak^{1,*}, Ksenija Markov¹, Zeljko Jakopovic¹, Antonio StarCevic¹, Ana Gavrilovic², Jurica Jug Dujakovic³, Jadranka Frece¹

¹ Faculty of Food Technology and Biotechnology University of Zagreb, Zagreb, Croatia

² Department of Natural and Health Sciences, Juraj Dobrila University of Pula, Pula, Croatia

³ Sustainable Aquaculture Systems Inc., Frenchtown, USA

E-mail address: icanak@pbf.hr (I. Canak).

Lactobacillus plantarum O1 was isolated from European sea bass (*Dicentrarchus labrax*) and identified by API, MALDI-TOF MS and

electrospray LC-MS/MS method. As it showed strong antimicrobial activity on potential pathogens of concern to the fish industry, we tested it for the presence of bacteriocin by LC-MS/MS method. Results demonstrate the presence of plantaricin NC8, confirmed by a positive MS2 peptide database match. Furthermore, during growth on DA-H medium, *L. plantarum* O1 showed no ability to produce histamine. Therefore, *L. plantarum* O1 was used for biopreservation of sea bass, oysters and mussels. Previous studies provide no data relating to the biopreservation of fresh aquatic products by LABs from their natural microflora. Extension of shelf life, sensory, microbiological, and chemical freshness parameters of biopreserved aquaculture were analyzed. As compared to the control samples of fresh sea bass and molluscs that were microbiologically unsafe after third day, shelf-life of fresh sea bass was extended to ten days, while shelf-life of live oysters and mussels treated with *L. plantarum* O1 bath was extended to thirteen days. The use of *L. plantarum* O1 as a biopreservative gives increased product safety as well as a longer shelf-life and offers a better alternative for preserving sea foods.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.1020>

Impact of neutrase and transglutaminase treatment on the antigenicity of soy and wheat proteins



Iuliana Aprodu*, Livia Patrascu, Iuliana Banu

Dunarea de Jos University of Galati, Faculty of Food Science and Engineering, Galati, Romania

E-mail address: iuliana.aprodu@ugal.ro (I. Aprodu).

The effect of exogenous enzymes on antigenic character of soy and wheat proteins was investigated. ELISA tests (RIDASCREEN® Gliadin and RIDASCREEN® FAST SOYA) were used to detect gliadin and soy proteins after incubating the vital gluten and soy protein isolate with neutrase or transglutaminase for 30 min at 50 °C. The residual antigenicity was determined as percentage of allergen protein recognized by specific antibodies in respect to the untreated samples. Hydrolysis with neutrase resulted in almost complete elimination of the antigenic properties of soy and wheat proteins, indicating high affinity of the enzyme for the structural epitopes. The cross-linking reaction catalyzed by transglutaminase resulted in 95% reduction of the residual antigenicity of soy protein, and over 75% in case of gluten. The conformational epitopes might be altered because of involvement of exposed amino acids in cross-linking reactions, or blocked within the protein aggregates. These results suggest the possibility of reducing the antigenicity of two of the most important proteins responsible for allergenic reaction worldwide, by employing the neutrase or transglutaminase treatment at levels recommended for bakery applications.

Acknowledgements: This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS–UEFISCDI, project number PN-II-RU-TE-2014-4-0618.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.1021>

Characterization of two commercial chitosans



Kader Tokatli*, Aslihan Demirdoven

Department of Food Engineering, Gaziosmanpasa University, Tokat, Turkey

E-mail address: kader.tokatli@gop.edu.tr (K. Tokatli).

In recent years, there is an increased interest in chitosan, which is a natural carbohydrate polymer obtained by deacetylation of