

Accepted Manuscript

Using brewer's spent grain to formulate culture media for the production of bacteriocins using Patagonian strains

Alicia Paz, Sabrina da Silva Sabo, Marisol Vallejo, Emilio Marguet, Ricardo Pinheiro de Souza Oliveira, José Manuel Domínguez



PII: S0023-6438(18)30441-9

DOI: [10.1016/j.lwt.2018.05.027](https://doi.org/10.1016/j.lwt.2018.05.027)

Reference: YFSTL 7137

To appear in: *LWT - Food Science and Technology*

Received Date: 8 January 2018

Revised Date: 9 May 2018

Accepted Date: 9 May 2018

Please cite this article as: Paz, A., da Silva Sabo, S., Vallejo, M., Marguet, E., Pinheiro de Souza Oliveira, R., Domínguez, José.Manuel., Using brewer's spent grain to formulate culture media for the production of bacteriocins using Patagonian strains, *LWT - Food Science and Technology* (2018), doi: 10.1016/j.lwt.2018.05.027.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Using brewer's spent grain to formulate culture media for the production of bacteriocins using Patagonian strains

Alicia Paz^{a,**}, Sabrina da Silva Sabo^{a,b,**}, Marisol Vallejo^c, Emilio Marguet^c, Ricardo Pinheiro de Souza Oliveira^b, José Manuel Domínguez^{a,*}

^aDepartment of Chemical Engineering, Faculty of Sciences, University of Vigo (Campus Ourense), As Lagoas s/n, 32004 Ourense, SPAIN and Laboratory of Agro-food Biotechnology, CITI (University of Vigo)-Tecnópole, Parque Tecnológico de Galicia, San Cibrao das Viñas, 32900 Ourense, SPAIN.

^bDepartment of Biochemical and Pharmaceutical Technology, Faculty of Pharmaceutical Sciences, University of São Paulo, Av. Lineu Prestes 580, Bl 16, 05508-900, São Paulo, Brazil.

^cCátedra de Biología Celular y Molecular, Facultad de Ciencias Naturales (FCN), Universidad Nacional de la Patagonia San Juan Bosco (UNPSJB), Sede Trelew. Roca 115, 1º Piso, 9100 Trelew, Chubut, Argentina

Abstract

This study evaluates the use of hemicellulosic hydrolyzates, derived from brewer's spent grain (BSG), as a means of generating bacteriocins. The producer strains, *Lactococcus lactis* Tw11 and *Enterococcus mundtii* Tw492, were isolated from animals of Argentine Patagonia. Different culture formulations were tested, and antimicrobial activity was determined against *Listeria monocytogenes* CECT-934. The presence of Tween 80 allowed the release of bacteriocins produced by both strains, with inhibition halos of 15.46 mm \pm 0.05 using *L. lactis* Tw11, and 24.47 mm \pm 0.09 using *E. mundtii* Tw492. Also, under these conditions the concentration of lactic acid was seen to increase to 3.21 g L⁻¹ \pm 0.12 using *L. lactis* Tw11, yet remained very similar (2.45 g L⁻¹ \pm 0.01) with *E. mundtii* Tw492. The activity of the bacteriocins was scarcely affected by additional supplementation with salts. This research suggests that BSG and other similar materials can be used in the production of bacteriocins employing ecofriendly methods.

Keywords: brewer's spent grain, bacteriocins, *Lactococcus lactis*, *Enterococcus mundtii*, *Listeria monocytogenes*

Download English Version:

<https://daneshyari.com/en/article/8890379>

Download Persian Version:

<https://daneshyari.com/article/8890379>

[Daneshyari.com](https://daneshyari.com)