

International Conference on

Nutritional Science and Food Technology

July 02-03, 2018 Rome, Italy

Production of dried *Lactobacillus Plantarum* HL-15 culture for inhibition growth of mycotoxin producing fungi in food

Tri Marwati¹, Irene P.P. Lamadoken², Titiek F. Djaafar¹, Tyas Utami² and Endang S. Rahayu²

¹Assessment Institute for Agricultural Technology Yogyakarta, Indonesia

²Gadjah Mada University, Yogyakarta, Indonesia

Abstract

Lactobacillus plantarum HL-15 is known to be able to inhibit the growth of mycotoxin producing fungi. To support the application of that culture, the research aims to produce dried *L. plantarum* HL-15 and observe its stability during storage was conducted. Production of dried culture was started by fermentation of *L. plantarum* HL-15 then centrifuged to get the pellet. The pellet was mixed with filler (rice flour or tapioca) with a ratio pellet: filler (10%) = 1:1 (v/v) then dried. Drying machine used in this research were spray dryer with inlet temperature 105°C and outlet temperature 65°C. Dried culture was packaged in aluminium foil and sealed then stored at 4°C. Result showed that viable cells of dried inoculum with rice flour filler was $11,99 \pm 0,01$ log CFU/g and its water content was $9,08 \pm 0,05\%$ and dried inoculum with tapioca filler was $11,90 \pm 0,04$ log CFU/g and its water content was $10,11 \pm 0,08\%$. Spray dried *L. plantarum* HL-15 was proved being able to inhibit the growth of *Aspergillus niger*. This is shown from the control *A. niger* growth diameter was $3,66 \pm 0,31$ cm respectively decreasing to $0,47 \pm 0,04$; $0,41 \pm 0,05$; $0,5 \pm 0,03$; $0,48 \pm 0,05$ and $0,63 \pm 0,12$ cm with spray dried *L. plantarum* HL-15 using filler rice flour, which has been stored for 0,1,2,3, 4 and 5 months and respectively decreasing to $0,53 \pm 0,06$; $0,37 \pm 0,03$; $0,37 \pm 0,04$; $0,46 \pm 0,02$ and $0,73 \pm 0,12$ cm with spray dried *L. plantarum* HL-15 using filler tapioca which has been stored for 0,1,2,3 and 4 months. Viability loss of spray dried *L. plantarum* HL-15 culture using rice flour is lower than dried culture using tapioca as filler. *Lactobacillus plantarum* HL-15 spray dried cultures could be stored at 4°C for 4 month for tapioca and 5 months for rice flour as filler. *Lactobacillus plantarum* HL-15 spray dried cultures could inhibit the growth of *Aspergillus niger* so it could be used as a culture for inhibiting the growth of mycotoxin producing fungi in food.

Biography

Ir.Tri Marwati is currently working as a Young Researcher in Postharvest Department at Assessment Institute for Agricultural Technology Yogyakarta, Indonesia. She published many articles in reputed journals and attended international conferences.

email: watipasca@yahoo.com