



Inhibition of *Bacillus cereus* growth by bacteriocin producing *Bacillus subtilis* strains isolated from maari, a baobab seeds fermented condiment is substrate dependent

Kaboré, Donatien; Thorsen, Line; Nielsen, Dennis Sandris; Berner, Torben Sune; Sawadogo-Lingani, Hagrétou; Diawara, Bréhima; Jakobsen, Mogens

Published in:

Global issues in food microbiology

Publication date:

2012

Document version

Publisher's PDF, also known as Version of record

Citation for published version (APA):

Kaboré, D., Thorsen, L., Nielsen, D. S., Berner, T. S., Sawadogo-Lingani, H., Diawara, B., & Jakobsen, M. (2012). Inhibition of *Bacillus cereus* growth by bacteriocin producing *Bacillus subtilis* strains isolated from maari, a baobab seeds fermented condiment is substrate dependent. In *Global issues in food microbiology: abstract book* (pp. 140)

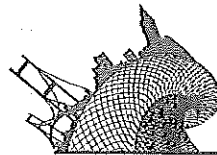
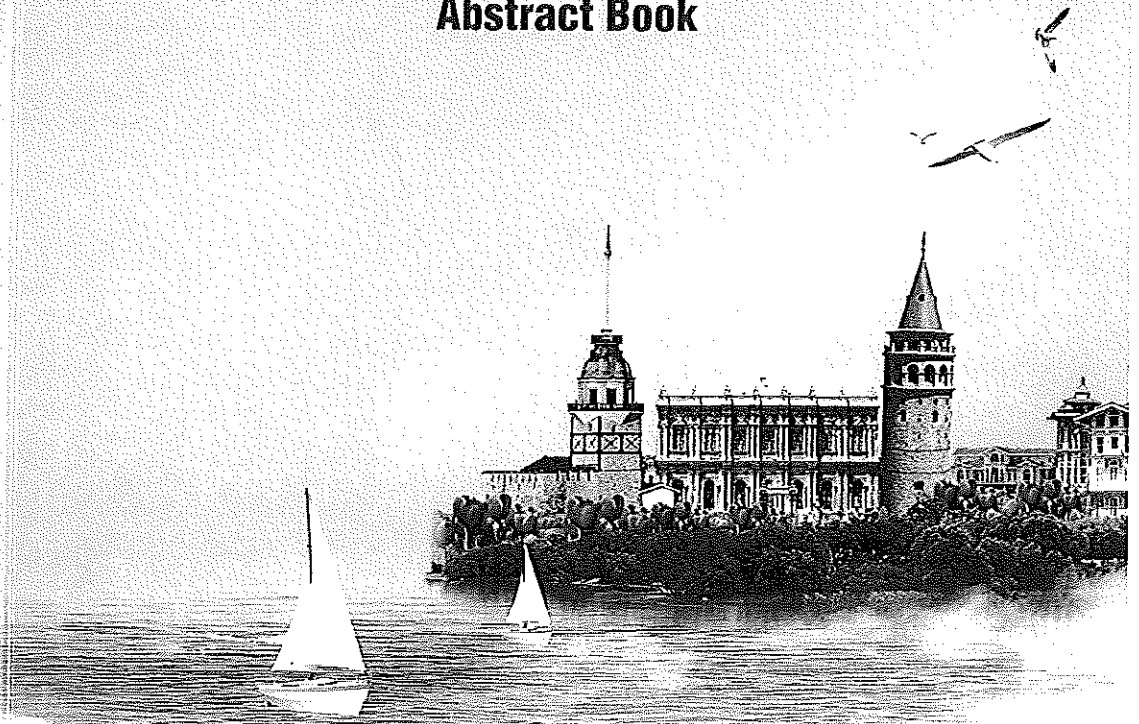


23rd INTERNATIONAL ICFMH SYMPOSIUM
FoodMicro 2012



Global Issues In Food Microbiology

Abstract Book



FoodMicro

3-7 SEPTEMBER 2012 ISTANBUL

WEDNESDAY, 5th September- 15:00-16:10

PARALLEL SESSION
Food fermentation: Safety

Inhibition of *Bacillus cereus* growth by bacteriocin producing *Bacillus subtilis* strains isolated from maari, a baobab seeds fermented condiment is substrate dependent

Donatien KABORÉ¹, Line THORSEN², Dennis Sandris NIELSEN², Torben Sune BERNER², Hagrétou SAWADOGO-LINGANI¹, Bréhima DIAWARA¹, Mogens JAKOBSEN²

1: IRSAT, Food Technology, Ouagadougou, BURKINA FASO

2: University of Copenhagen, Department of Food Science, Copenhagen, DENMARK

Corresponding author: kdonatien@hotmail.fr

The antimicrobial activity of 8 *Bacillus* spp. and 2 *Lysinibacillus* spp. representing the predominant aerobic sporeformers during traditional maari fermentations, a traditional fermented baobab seeds product from Burkina Faso, was investigated. The antimicrobial activity was assessed against a total of Thirty one (31) indicator organisms representing various Gram-negative and positive pathogens: seventeen *B. cereus* species, three *Listeria monocytogenes* species, seven *Salmonella* species, two *Yersinia* species, one specie of *Escherichia coli* and one specie of *Micrococcus luteus*. The screening showed that 3 *Bacillus subtilis* strains (B3, B122 and B222) in particular had antimicrobial activity against some Gram-positive organisms and were selected for further studies. It was found that the antimicrobial substances produced were heat stable, in-sensitive to catalase, sensitive to protease and trypsin but resistant to the proteolytic action of papain and proteinase K and equally active at pH values ranging from 3 to 11. Bacteriocin secretion started in late exponential growth phase and maximum activity was detected during the stationary growth phase. The production of bacteriocin by *B. subtilis* B3, B122 and B222 was dependent on the aeration conditions. Maximum production of bacteriocin was observed under reduced aeration. Specific primers were used to screen isolates B3, B122 and B222 for genes involved in the synthesis of the bacteriocins subtilisin A, subtilin, sublancin and ericin. Amplicons of the expected sizes were detected for *iywB*, *sboA*, *sboX*, *albA* and *spaS* involved in the biosynthesis of subtilisin and subtilin, respectively. The translated nucleotide sequences had 100% identity to the *YiwB*, *SboX* and *SboA* amino acid sequences of the subtilisin A producing *B. subtilis* subsp. *subtilis* strain 168. Interestingly there was a 3 amino acid deletion at the N-terminal part of *AlbA* in B3, B122 and B222 that probably alters the activity of this enzyme. Analysis of the *spaS* gene sequences of B3, B122 and B222, encoding a subtilin precursor peptide, showed that the translated nucleotide sequence had 98% identity with the corresponding *SpaS* amino acid sequence of subtilin producing *B. subtilis* subsp. *spizizenii* strain ATCC6633.

Management of
milk cheese mak

Isabelle VERDIER-M
MONSALLIER¹, Sté
CALLON¹, Marie-Cl

1: INRA, UR545 Fromagè

2: Université d'Auvergne,

Corresponding author: i

Management of microbia
qualities of raw milk chee
strategy which has reduc
those of interest for chee
aiming at maintaining mil
They require a better know
Our research aims at iden
teat skin, feed, pasture, str
with functional potential fi
affect these communities
biodiversity before the m
molecular approach and
community was highly div
sequences and 66 species
(*Enterococcus*, *Pediococcu*
identified. Some commens
Coprococcus catus) were r
microbial flow from animal
vegetal diversity was comp
teats of grazing cows, in p
were 2 log CFU/ml lower
diversity of unidentified sp
(*Bacillus*, *Clostridium*, *Stap*
microbiota changes from o
forage, age of animals,
corynebacteria and coagulase
non-intensive teat hygiene. F
to milk deserves further inves