

**BIOTECHNOLOGICAL APPROACHES ON THE
FERMENTATIVE PRODUCTION OF BACTERIOCIN AS
BIOPRESERVATIVE**

**A Thesis
Submitted to the
University of Mysore**

**For the Award of the Degree of
DOCTOR OF PHILOSOPHY**

**In
BIOTECHNOLOGY**

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**DEDICATED TO MY BELOVED PARENTS
& WELL WISHERS**

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November 29, 2004


DECLARATION

I hereby declare that the thesis entitled "BIOTECHNOLOGICAL APPROACHES ON THE FERMENTATIVE PRODUCTION OF BACTERIOCIN AS BIOPRESERVATIVE" submitted to the University of Mysore for the award of the degree of DOCTOR OF PHILOSOPHY in BIOTECHNOLOGY is the result of the research work carried out by me under the guidance and supervision of Dr. ARUN CHADRASHEKAR, Sr. Scientist; Central Food Technological Research Institute, Mysore- 570 020, India; during the period 1998-2004.

I further declare that the results presented in this thesis have not been submitted for the award of any other degree or with any similar title.

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ARUN CHANDRASHEKAR
(Research Guide)

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Prakash Halami
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29.11.2004

ABBREVIATIONS USED

Ab	Antibody
APS	Ammonium persulfate
ATP	Adenosine triphosphate
AU	Arbitrary Unit
BCP	Bromo cresol purple
BCIP	5-Bromo-4-chloro-3-indolyl phosphate
BHI	Brain-heart infusion broth
BLAST	Basic Local Alignment Search Tool
BSA	Bovine serum albumin
CF	Culture filtrate
CFU	Colony forming unit
CIAP	Calf intestinal alkaline phosphatase
Da	Dalton
DIG	Digoxigenin
DMF	N, N'-Dimethylformamide
DMSO	Dimethyl sulfoxide
DNase	Deoxyribonuclease
dNTP	Deoxynucleoside triphosphate
DTT	1, 4-Dithiothreitol
EDTA	Ethylene diamine tetraacetic acid
h	Hour (time)
IPTG	Isopropyl- β -D-thio galactopyranoside
IB	inclusion body
kb	kilobase
kDa	kilodalton
LAB	Lactic acid bacteria
LB	Luria Bertani media
MBP	Maltose binding protein

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LAB	Lactic acid bacteria
LB	Luria Bertani media
MBP	Maltose binding protein

MCA	Mono clonal antibody
MDa	Mega dalton
MES	2-[N-morpholino]ethanesulfonic acid
MIC	Minimum inhibitory concentration
mM	millimolar
MOPS	3-[N-morpholino]-2-hydroxypropanesulfonic acid
MRS	De Man, Rogosa and Sharpe
MRVP	Methyl red voges proskauer reaction
MW	Molecular weight
MTCC	Microbial Type Culture Collection
NBT	Nitro blue tetrazolium
NCDO	National Collection of Dairy Organisms
NCFB	National Collection of Food Bacteria
NCIM	National Collection of Industrial Microorganisms
NRRL	Northern Regional Research Laboratory
OD	Optical density
ONPG	O-Nitrophenyl- β -D-galactopyranose
ORF	Open reading frame
PBS	Phosphate-buffered saline
PCR	Polymerase Chain Reaction
PEG	Polyethylene glycol
Rec-pediocin	Recombinant pediocin
RNase	Ribonuclease
rRNA	Ribosomal RNA
RP-HPLC	Reverse phase high performance liquid chromatography
SDS-PAGE	Sodium dodecyl sulfate polyacrylamide gel electrophoresis

PEG	Polyethylene glycol
PMSF	Phenyl methyl sulfonyl fluoride
SSC	Saline sodium citrate
SSCP	Single stranded conformational polymorphism
TAE	Tris-acetate-EDTA buffer
Tricine	N-tris (hydroxymethyl) methylglycine
TCA	Tri chloro acetic acid
TE	Tris-EDTA buffer
TEMED	N, N, N', N'-tetramethyl-1,2-diaminoethane
TFA	Trifluoro acetic acid
Tris	Tris (hydroxymethyl) amino methane
TGE	Tryptone glucose yeast extract
X-Gal	5-bromo-4-chloro-3-indolyl- β -D-galactopyranoside
X-phosphate	5-bromo-4-chloro-3-indolyl phosphate
YE	Yeast extract
WP	Whey permeate
WT	Wild type

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