



Declaration

I hereby declare that the work which is being presented in the thesis “**Studies on microbial phosphate solubilization and development of inoculum formulations**” submitted by me for the award of the degree of **DOCTOR OF PHILOSOPHY** in the Department of Biotechnology, Thapar University, Patiala, is true and original record of my own independent and original research work carried out under the kind supervision of Prof. M. Sudhakara Reddy, Department of Biotechnology, Thapar University, Patiala, India. The matter embodied in this thesis has not been submitted in part or full to any other University or Institute for the award of any degree in India or abroad.

Date: 11. Feb, 2014

Gurdeep Kaur

(Gurdeep Kaur)

Place: Patiala.

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Gurdeep Kaur.
(Gurdeep Kaur)



*Dedicated
To
My beloved
Parents*



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Abbreviations

bp	Base pair
BLAST	Basic local alignment search tool
CTAB	Cetyltrimethyl ammonium bromide
cfu	Colony forming Units
DNA	Deoxyribonucleic acid
dNTP	2'-deoxynucleoside-5'-triphosphate
EDTA	Ethylenediamine-tetra acetic acid g Gram h Hours ha Hectare
IPTG	Isopropyl—thiogalactoside
Kb	Kilo base
l	Liter
mS cm ⁻¹	Millisiemens per cm
mg	Milligram
mg/kg (ppm)	Milligram per kilogram (parts per million)
ml	Milliliter
NCBI	National centre for biotechnology and information
P	Phosphorus
PCR	Polymerase chain reaction
PSMs	Phosphate-solubilizing microorganisms
rDNA	Ribosomal deoxyribonucleic acid
RNA	Ribonucleic acid
rpm	Revolution per minute
rRNA	Ribosomal ribonucleic acid
RRP	Rajasthan rock phosphate
TCP	Tri-calcium phosphate
Tris	Tris-(hydroxymethyl-) aminomethane
μg	Microgram
μl	Microliter
X-Gal	5-Bromo-4-chloro-3-indolyl--D-galactoside