DECLARATION

I, S. ASWIN KUMAR, M.Sc., Ph.D. Research Scholar, PG & Research Department of Zoology, Presidency College(Autonomous), Chennai – 600005, hereby declare that the thesis entitled “ECOFRIENDLY BIOREMEDIATION OF TEXTILE AZO DYSES BY TEXTILE EFUENT ACCLIMATIZED BACTERIAL STRAINS UNDER AEROBIC CONDITIONS” Submitted for the degree of Doctor of Philosophy is my original work and that it has not been previously submitted for the award of any other Degree or Diploma, Associateship, Fellowship or other titles in this or any other University or similar Institution of higher learning.

Signature of the candidate
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<table>
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<tr>
<td>%</td>
<td>Percentage</td>
</tr>
<tr>
<td>(NH₄)₂SO₄</td>
<td>Ammonium sulphate</td>
</tr>
<tr>
<td>°C</td>
<td>Degree Celsius</td>
</tr>
<tr>
<td>µg</td>
<td>Microgram</td>
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<tr>
<td>µl</td>
<td>Microliter</td>
</tr>
<tr>
<td>µm</td>
<td>Micromolar</td>
</tr>
<tr>
<td>A₆₀₀</td>
<td>Absorbance 600</td>
</tr>
<tr>
<td>AgNO₃</td>
<td>Silver Nitrate</td>
</tr>
<tr>
<td>BOD</td>
<td>Biological Oxygen Demand</td>
</tr>
<tr>
<td>Br</td>
<td>bacteriorhodopsin</td>
</tr>
<tr>
<td>CaCl₂</td>
<td>Calcium chloride</td>
</tr>
<tr>
<td>CFU</td>
<td>Colony Forming Units</td>
</tr>
<tr>
<td>Cm</td>
<td>Centimeter</td>
</tr>
<tr>
<td>COD</td>
<td>Chemical Oxygen Demand</td>
</tr>
<tr>
<td>DPX</td>
<td>Distyrene Plasticizer Xylene</td>
</tr>
<tr>
<td>DO</td>
<td>Dissolved Oxygen</td>
</tr>
<tr>
<td>EDTA</td>
<td>Ethylene Diamine Tetra Acetic acid</td>
</tr>
<tr>
<td>et al.,</td>
<td>And others</td>
</tr>
<tr>
<td>FT-IR</td>
<td>Fourier Transform Infra Red</td>
</tr>
<tr>
<td>G</td>
<td>Gram</td>
</tr>
<tr>
<td>GC-MS</td>
<td>Gas Chromatography –Mass Spectrophotometer</td>
</tr>
<tr>
<td>gl⁻¹</td>
<td>Gram per litre</td>
</tr>
<tr>
<td>hrs</td>
<td>Hours</td>
</tr>
<tr>
<td>H₂O₂</td>
<td>Hydrogen peroxide</td>
</tr>
<tr>
<td>HCl</td>
<td>Hydrochloric acid</td>
</tr>
<tr>
<td>HPLC</td>
<td>High Pressure Liquid Chromatography</td>
</tr>
<tr>
<td>KBr</td>
<td>Potassium Bromide</td>
</tr>
<tr>
<td>KCl</td>
<td>Potassium chloride</td>
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kDa : Kilo Dalton
KI : Potassium Iodide
Kl : Kilolitre
KNO₃ : Potassium nitrate
l : Litre
M : Molarity
Mg : Milligram
MgCl₂ : Magnesium chloride
min : Minutes
ml : Millilitre
mM : Millimolar
MnCl₂ : Manganese (II) chloride
-N=N- : Azo bond
NaCl : Sodium chloride
NCBI : National center for Biotechnology Information
NH₄Cl : Ammonium chloride
NH₄NO₃ : Ammonium nitrate
nm : Nanometer
OH : Hydroxyl group
PCMB : p-Chloro Mercury Benzoate
PCR : Polymerase Chain Reaction
pH : Hydrogen ion concentration
PL : Primary Lamellae
PMSF : Phenyl Methyl Sulfonyl Fluoride
ppm : Parts Per Million
RDP : Ribosomal Database Project
rpm : rotation per Minute
S.D. : Standard Deviation
SDS-PAGE : Sodium Dodecyl Sulphate-Poly Acrylamide
Sec : Seconds
SL : Secondary Lamellae
TE : Textile Effluent
U : Units
UV : Ultra Violet
UV-Vis : Ultra Violet-visible
V/v : volume per volume
W/v : Weight per volume
ZnO$_2$ : Zinc oxide
ZnSO$_4$ : Zinc sulphate
$^0$ max : Absorption Maxima
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b. Manganese peroxidase (MnP, EC 1.11.1.13)
c. Laccases (EC 1.10.3.2)

2.12 Fish Toxicity
2.13 Bioaccumulation

Chapter-I: Ecofriendly Bioremediation of Evan’s Blue by Textile Effluent
Acclimatized Bacterial Strain, *Escherichia coli* AKIP-2

3.1 Introduction
3.2 Materials and Methods
3.3 Results
3.4 Discussion

Chapter-II: Ecofriendly Bioremediation of Malachite Green Textile Effluent
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