I hereby declare that the work reported in the Ph.D. thesis entitled “Ecotoxicological and Genotoxicological Characterization of Industrial Effluent from Sachin Industrial Zone, Surat, South Gujarat, India” submitted to the Department of Biosciences, Veer Narmad South Gujarat University, Surat is an authentic record of my work carried out under the supervision of Dr. M. N. Reddy, Professor, Department of Biosciences, Veer Narmad South Gujarat University, Surat. I have not submitted this work elsewhere for any other degree or diploma. I am fully responsible for the contents of my Ph.D. Thesis.

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Date :
ACKNOWLEDGEMENTS

I take this opportunity to express my reverence to my Research Guide, Dr. M.N. Reddy, Professor of Biosciences, Veer Narmad South Gujarat University, Surat, who introduced me to a fascinating realm of my current research work. His inspiring guidance and constant motivation have helped me to understand better and remain optimistic. I am grateful to him for giving me liberty in the work undertaken & for unwavering support and encouragement during my doctoral programme. Although this eulogy is insufficient, I preserve an everlasting gratitude for him.

This work was also possible because of the unconditional support provided by Dr. S.K. Tank, Professor and Head, Department of Biosciences, VNSGU, Surat.

I am grateful to my teachers, who inspired my interest in Science and ushered me towards a career in Biological Sciences. True mentors are the anonymous reviewers, who showed the rationale of research to me. This has greatly helped me in improving the insights, skills and taught the process in the approach, design and analysis of research problems.

I wish to acknowledge my deep gratitude to Dr. Pankaj Gadhia, retired Professor and Head, Department of Biosciences, VNSGU, Surat for his genuine support in the administrative process of my Ph.D. registration. I am thankful to the teaching and non-teaching staff of the Department of Biosciences, Veer Narmad South Gujarat University, Surat for their timely help. Also contributions of Dr. VGS Sharma, Mr. Chirag Prajapati, Mr. Rajesh Jethwa, Mr. Mitesh Patel, Mr. Gaurav and other research scholars, in the department need to be acknowledged.

I thankfully acknowledge Jai Research Foundation, Vapi for supporting me to conduct the research. I express my gratitude to Dr. Manish Patel, Dr. Nadeem Khan, Dr. Ekhalak Ansari, Dr. K. Baskar, Mr. Ankur Upadhyay, Mr. Partha Bose, Dr. Rajendra Nagane, Dr. Rahul Date, Ms. Heena Parmar, Ms. Jinal Shah, Ms. Minal Kamle, Ms. Pallavi Chaudhari, Mr. Tirath Jotva, Mr. Brijendra Kurmi, Mr. Ashok Amruskar, Mr. Gopi and to all the staff of Jai Research Foundation for their help and suggestions.
ACKNOWLEDGEMENTS (continued)

I extend my special thanks to Dr. Dipak Patel, a person with an amicable nature; he has always made himself available to help me and to clarify my doubts despite his busy schedules.

To my friends, you should know that your support and encouragement were worth more than I can express on paper. My thanks are due to Mr. Macky Suraliwala, Mr. Denish Gandhi, Mr. Amish Desai, Mr. Anand Shah, Mr. Rizvan Patel and Mr. Dilip Patel for their contributions and sparing time to be with me and constantly encouraging me to complete my thesis.

Undoubtedly, immortal people were associated with this thesis and are impossible to me to mention all of them. In this regard, my honest, humble, and sincere thanks to all the individuals who have in any way been associated with the completion of this research work.

Further, I express my wholehearted thanks to my wife, Mrs. Kinnari J. Rana for her forbearance, untiring support and encouragement. I appreciate the patience of my little baby, Hiya J. Rana and my niece, Vrisha B. Rana shown during my research period.

I render my sincere gratefulness to my beloved parents, Mrs. Ranjanben R. Rana and Late Mr. Rameshbhai S. Rana for being my source of inspiration and providing unvarying support. I would like to express thanks to my dearest brother, Mr. Bhavin R. Rana, Mr. Jatin R. Rana and sister-in-law, Mrs. Lina B. Rana and Mrs. Shaifali J. Rana for their support.

Date:

JIGARKUMAR R. RANA
# Abbreviations

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<tr>
<td>%</td>
<td>Percentage</td>
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<tr>
<td>↓</td>
<td>Significantly lower than control at 1% level (p &lt; 0.05)</td>
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<tr>
<td>↓↓</td>
<td>Significantly lower than control at 1% level (p &lt; 0.01)</td>
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<td>β-NADP</td>
<td>β Nicotinamide adenine dinucleotide Phosphate</td>
</tr>
<tr>
<td>°C</td>
<td>Degree celsius</td>
</tr>
<tr>
<td>2Aa</td>
<td>2-Aminoanthracene</td>
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<tr>
<td>AAS</td>
<td>Atomic Absorbance Spectrophotometer</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<tr>
<td>APHA</td>
<td>American Public Health Association</td>
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<tr>
<td>ATCC</td>
<td>American Type Culture Collection</td>
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<tr>
<td>BOD</td>
<td>Biochemical oxygen demand</td>
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<td>cm</td>
<td>Centimeter</td>
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<tr>
<td>COD</td>
<td>Chemical oxygen demand</td>
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<tr>
<td>CPCB</td>
<td>Central Pollution Control Board</td>
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<tr>
<td>CV</td>
<td>Coefficient Variation</td>
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<tr>
<td>DNA</td>
<td>Deoxyribonucleic acid</td>
</tr>
<tr>
<td>DO</td>
<td>Dissolved oxygen</td>
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<td>EC</td>
<td>Effective concentration</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>GC-MS</td>
<td>Gas chromatography-mass spectrometry</td>
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<tr>
<td>GIDC</td>
<td>Gujarat Industrial Development Corporation</td>
</tr>
<tr>
<td>h</td>
<td>Hour</td>
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<tr>
<td>hpf</td>
<td>Hour post fertilization</td>
</tr>
<tr>
<td>I&lt;sub&gt;y&lt;/sub&gt;</td>
<td>Yield inhibition</td>
</tr>
<tr>
<td>Km</td>
<td>Kilometer</td>
</tr>
<tr>
<td>L</td>
<td>Liter</td>
</tr>
<tr>
<td>LC</td>
<td>Lethal concentration</td>
</tr>
<tr>
<td>LOEC</td>
<td>Lowest observed effect concentration</td>
</tr>
<tr>
<td>mg</td>
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<td>mm</td>
<td>Millimeter</td>
</tr>
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<td>MOE</td>
<td>Ministry of Environment</td>
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<td>N</td>
<td>Normality</td>
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<td>NC</td>
<td>Negative Control</td>
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<td>ND</td>
<td>Not detected</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PAHs</td>
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<td>PC</td>
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<td>PCBs</td>
<td>Polychlorinated biphenyls</td>
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<td>PCF</td>
<td>Petroleum carbon fuel</td>
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<td>pH</td>
<td>potentially of hydrogen</td>
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<td>Surat Special Economic Zone</td>
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<td>Toxicity identification evaluation</td>
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<td>TLM</td>
<td>Median tolerance limit</td>
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<td>TRE</td>
<td>Toxicity reduction evaluation</td>
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<tr>
<td>TS</td>
<td>Total solid</td>
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<tr>
<td>TSS</td>
<td>Total suspended solids</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>V</td>
<td>Volume</td>
</tr>
<tr>
<td>WET</td>
<td>Whole effluent toxicity</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>μm</td>
<td>Micrometer</td>
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<tr>
<td>μS</td>
<td>Microsiemens</td>
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