

**INFLUENCE OF *Bacillus pumilus* ON THE CORROSIVITY
OF BIODIESEL OBTAINED FROM
*Jatropha curcas***

**Thesis submitted in partial fulfillment of the
*Degree of Doctor of Philosophy in Chemistry***

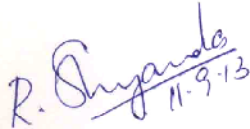
**By
S. Malarvizhi
(08PH08)**

**Department of Chemistry
Avinashilingam Institute for Home Science and Higher Education
for Women, Coimbatore – 641 043.**

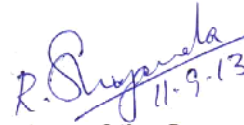
September, 2013

CERTIFICATE FROM THE SUPERVISOR

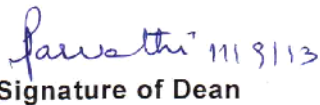
I certify that the thesis entitled "INFLUENCE OF *Bacillus pumilus* ON THE CORROSIVITY OF BIODIESEL OBTAINED FROM *Jatropha curcas*" submitted for the degree of Doctor of Philosophy (Ph.D.) by Mrs. S. MALARVIZHI is the record of research work carried out by her during the period from 02.05.2008 to 11.09.2013 under my guidance and supervision, and that this work has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or other Titles in this University or any other University or institution of Higher Learning.



Signature of the H.O.D.



Signature of the Supervisor
with designation

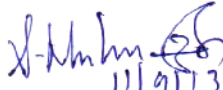


Signature of Dean

Dr. A. PARVATHI, M.Sc., Dip.H.Ed., M.Phil., Ph.D.,
Dean, Faculty of Science
Professor and Head
Department of Mathematics
Avinashilingam Institute for Science
and Higher Education for Women
Coimbatore - 641 043

DECLARATION

I declare that the thesis entitled “**INFLUENCE OF *Bacillus pumilus* ON THE CORROSIVITY OF BIODIESEL OBTAINED FROM *Jatropha curcas***” submitted by me for the degree of Doctor of Philosophy (Ph.D.) is the record of work carried out by me during the period from 02.05.2008 to 11.09.2013 under the guidance of **Dr. SHYAMALA, R.** and has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship, Titles in this University or any other University or other similar institution of Higher Learning.



Signature of the Candidate

ACKNOWLEDGEMENT

I submit my pranams to **The ALMIGHTY**, for the guidance and blessings in all my endeavours.

I extend my sincere thanks to **Dr.T.S.K.Meenakshisundaram**, Chancellor, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for providing the necessary infrastructure and support for pursuing the research.

I express my heartfelt gratitude to **Dr.Sheela Ramachandran**, Vice Chancellor, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for the unending encouragement to carry out the research.

I wish to thank **Dr. Gowri Ramakrishnan**, Registrar, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore for providing all administrative facilities to carry out the research work.

I owe my gratitude to **Dr. Saroja Prabhakaran**, former Vice Chancellor, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for granting permission to do research and being supportive.

I am thankful to **Dr.G.P.Jeyanthi**, Controller of Examinations and **Dr.P.Santhana Krishnan**, Director (R & C), Avinashilingam Institute for Home Science and Higher Education for Women ,Coimbatore, for their support and assistance.

I extend my thanks to **Dr.R.Parvatham**, former Dean, Faculty of Science and **Dr. Rachel Oommen**, former Dean, Faculty of Science for their valuable support. I thank **Dr.A.Parvathi**, Dean, Faculty of Science and **Dr.S.Maragatham**, Dean, Faculty of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for their immense and valuable support.

I owe my profound gratitude to my supervisor **Dr.R.Shyamala Krishnamurthy**, Professor & Head, Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her exemplary guidance, continuous support and positive criticism for my work.

I whole heartedly thank **Dr.S.Ananthalakshmi**, Professor and Head, Department of Science and Humanities, Faculty of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for her continuous encouragement in completing this work.

I am deeply indebted to **Dr.Sankara Papavinasam**, CorrMagnet Consulting Inc.,Canada, for his valuable and constructive suggestions during the planning and development of this research work.

I extend my thanks to, **Mrs. A.Ayisha Begum, Mrs. T.Poongodi** and **Mrs. J.Abiraami**, Assistant professors, Faculty of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for their whole hearted support and encouragement throughout my research work.

I am thankful to **Dr. B. Anandkumar**, Head, Department of Biochemistry and Biotechnology, Sourashtra College, Madurai for his timely help in completing my research work.

My deep sense of gratitude to **Dr.M.Kumaravel**, Professor. and Head, **Mr.S.Ramesh Kumar**, Asst.Prof., and **Mr.S.S.Subramanian**, Asst. Prof., Department of Chemistry and Applied Chemistry, P.S.G.College of Technology, Coimbatore for their timely help in carrying out the electrochemical studies.

My special thanks are extended to **Dr. K. Kadirvelu**, Joint Director, DRDO Centre, Bharathiar University, Coimbatore for the help in recording SEM images.

I am thankful to **Mrs. H.N. Meenakshi** and **Ms. M.C. Prasanna Venkatalakshmi**, Project assistants, **Mrs. K.R. Kanimozhi**, and **Mrs. Anisha Anand**, and all the research scholars for their cooperation throughout my work.

I am extremely grateful to all the **faculty** members of the Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for their encouragement and support offered to me.

It was a pleasant experience to work and learn with my friends and colleagues in the Department of Science and Humanities, Faculty of Engineering, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore and I thank them for their support.

I owe my profound gratitude to my parents, my husband **Mr.M.Rangarajan**, and my daughter **Ms.R.Swetha** for their love, patience and encouragement which made this work possible.

S. MALARVIZHI