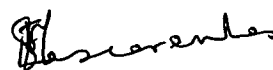


## STATEMENT

As required by the University Ordinance O.19.8 (ii), I state that the present thesis “Systematic Studies on the Endemic Species of the Family Acanthaceae from the Northern and parts of Central Western Ghats” is my original contribution and the same has not been submitted on any occasion for any other degree or diploma of this University or any other University/Institute. To the best of my knowledge, the present study is the first comprehensive work of its kind from the area mentioned. The literature related to the problem investigated has been cited. Due acknowledgments have been made wherever facilities and suggestions have been availed of.



Place: Goa University

(Maria Emilia da Costa Mascarenhas)

Date: 05 · 07 · 2010

Candidate

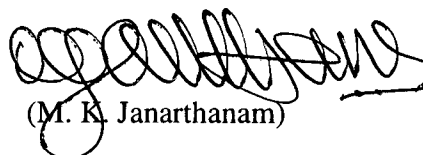
## CERTIFICATE

As required by the University Ordinance O. 19.8 (iv), this is to certify that the thesis entitled "Systematic Studies on the Endemic Species of the Family Acanthaceae from the Northern and parts of Central Western Ghats", submitted by Ms. Maria Emilia da Costa Mascarenhas for the award of the degree of Doctor of Philosophy in Botany, is based on her original and independent work carried out by her during the period of study, under my supervision.

The thesis or any part thereof has not been previously submitted for any other degree or diploma in any University or Institute.

Place: Goa University

Date: 5/7/2010



(M. K. Janarthanam)

Research Guide

## ACKNOWLEDGMENT

Success is such a comprehensive task it cannot be achieved single-handed. So, I would like to thank all individuals who were involved in helping me during the completion of my thesis. I thank God for giving me the strength to overcome all the difficulties that arose during the course of this study.

I wish to express my sincere thanks and deep gratitude to my research guide Prof. (Dr.) M. K. Janarthanam for his valuable and unfailing guidance during my entire work. I thank him for helping me make my dream a reality.

I am thankful to Prof. (Dr.) P. K. Sharma, Head, Botany Department and Prof. (Dr.) D. J. Bhat, former Head, Botany Department, Goa University for providing me with all facilities for the smooth functioning of my work. My sincere thanks to the subject expert Prof. (Dr.) B. F. Rodrigues, Department of Botany for his valuable suggestions, the teaching and non-teaching staff, Department of Botany, Goa University, for all their assistance during the course of my work.

My sincere thanks to the Principal Fr. (Dr.) Walter De Sa, former Principal Mr. Newman Fernandes, Vice-Principal Mrs. Ursula Baretto, former Vice-Principal Mrs. Marina Monteiro for granting me the facility of Study leave for my work. My gratitude to the teaching and non-teaching staff of Department of Botany and Department of Biotechnology, St. Xavier's College, Mapusa for all the co-operation and support during my work.

My sincere thanks to Prof. (Dr.) S. R. Yadav, Department of Botany, Shivaji University and Dr. K. Ravikumar, Scientist, FRLHT, Bangalore for their encouragement and support, Dr. M. Sabu, Department of Botany, Calicut University, Kerala for sending me photographs of type specimens and Dr. Milind M. Sardesai for his help during my work.

Special thanks to Dr. V. P. Prasad, Indian Liaison Officer (BSI) Royal Botanic Gardens, Kew and Timothy Harris Kew Botanical Gardens, London, for sending the photographs of the type. Dr. Robert Scotland and Dr. John I. Wood, Department of Plant Sciences, University of Oxford, U. K., Dr. Mark A. Carine, Department of Botany, The Natural History Museum, London and Dr. Tod Stuessy, Professor and Head, Department of Systematic and Evolutionary Botany, University of Vienna, Austria for sending me the protologues and reprints of Acanthaceae.

My sincere thanks to Joint Directors and Directors of CAL, BSI, MH, BLAT, JCB, FRLH, AHMA, SUK for allowing me to consult the herbarium, to see the *Type* specimens and to refer their libraries.

My special thanks to Mr. Shankar Shendege for his valuable help during my work and to the Physics Department, Shivaji University, Kolhapur for helping me with SEM.

My sincere gratitude and appreciation to Mr. Cedric Mascarenhas, Mr. Daniel Mascarenhas, Fr. Levis Gomes S.J., Ms Arcangela Lobo and Ms Suvarna Talwar for accompanying me to the field, for the encouragement and being there for me whenever needed.

I am very grateful to my fellow research friends Dr. Harshala Gad, Dr. Jyotsna Dessai, Mrs. Rupa Herlekar, Mr. Ashish Prabhugaonkar, Mr. Dilan Velip, Ms Sarita Yadav, for accompanying me in my fieldwork and lending me a helping hand.

I am very grateful to the Fr. Frazer Mascarenhas S.J., Principal, St. Xavier's College, Mumbai, for all the facilities during my stay at the college. To the Jesuit Provincial, Pune Province and the Rector, fathers and scholastics, DeNobili College, Pune, for helping me during my stay at Pune. My sincere thanks to Fr. Anthony de Silva S.J., Provincial, Goa Province for the German translation and Fr. Joe Fernandes for the Latin diagnosis.

My appreciation to my friends at the Department of Botany, Goa University, Ms. Vanessa Rodrigues, Dr. Rupali Bhandari, Dr. Janet, Dr. Radhika Nair, Dr. Puja Gawas, Ms. Jyoti Vaingankar, Mr. James D' Souza, Ms. Cassie Rodrigues, Ms. Sonashia Velho Periera, Ms. Shilpa Bhonsle, Mr. Siddesh Naik, Mr. M. Baskaran, Ms. Seema Dessai, Ms. Indira Talauliker, Mr. Bharat Patil, Ms. Freda Pereira, Ms. Sherryanne Velho Pereira and Ms. Valerie Gonsalves for all the help and support during my time at the university. My sincere thanks to Mr. Rajesh Narulkar for helping me during my work.

Lastly but not the least, I am deeply indebted to my husband Mr. Agnelo Mascarenhas, sons Mr. Cedric Mascarenhas, Mr. Daniel Mascarenhas and my mother Dr. Maria Cleto Lobo da Costa for all the support and co-operation during my work. Without their understanding and patience, especially on the part of my husband, it would have been very difficult to complete this work.