ACKNOWLEDGEMENT

It is a great pleasure to express my sincere and heartfelt gratitude to all who have supported me by constantly providing encouragement, motivation, influence and moral support throughout this whole study without which the completion of this thesis would not have been possible. First and foremost, I would like to express my deepest gratitude to my supervisor Dr. Asis Kumar Nandi, Associate Professor, Department of Botany and Forestry, Vidyasagar University, for giving me his invaluable suggestions, guidance and support throughout my entire study.

I am grateful to Prof. Ranjan Chakraborty, Honorable Vice Chancellor, for providing me the opportunity and facilities throughout my thesis work at this university.

I sincerely thank Dr. Prakash Karmakar, Head, Department of Botany and Forestry and the members of the Ph.D. committee of Vidyasagar University for providing the requisite facilities to carry out my doctoral research.

Words are not enough to express my gratitude for the noble efforts and valuable suggestions of Dr. Anirban Bhunia, Associate Professor, Bose Institute, Kolkata and Prof. Subhendu Ganguly, Former Professor, Bose Institute.

I convey my sincere acknowledgement to Dr. M. S. Negi, Fellow, Sustainable Division, The Energy and Resource Institute (TERI), New Delhi for the help and guidance needed to accomplish the genetical studies successfully.

I would like to acknowledge the help and support offered by the staff members of

University Science Instrumentation Centre of Vidyasagar University and Mr.

Swaroop Biswas of Bose Institute for the phytochemical analysis of Rhein.

I am indebted to all the faculty and staff members of the Department of Botany and

Forestry, Vidyasagar University for their help and support. I am thankful to the

Research Scholars of my Department for their cordial help, constant support and

encouragement throughout this journey.

I would like to specially acknowledge the efforts of my neighbors Mr. J. Maiti and

Mr. S. Samanta for helping me in preparing the experimental field and raising Senna

obtusifolia plants for collecting data for this research work for three consecutive

years. I also acknowledge the help extended by my relatives and friends for collecting

the germplasms from the diverse geographical locations of India which was one of the

major components for starting this research.

Finally, I express my deep love and gratitude to my parents, brother, sister, in-laws,

other family members and friends who have always encouraged and supported me to

carry out this research work. Their constant support, inspiration and encouragement

have always allowed me in concentrating throughout this entire journey.

Aparna Maiti (Dey)

Aparna Maili

Registration Number: 0516/Ph.D./Sc

Date: 17-06-2019

Place: Vidyasagar University

Midnapore – 721102