



VIDYASAGAR UNIVERSITY
Department of Botany & Forestry
Midnapore – 721102, West Bengal, INDIA

Dr. Prakash Karmakar

Assistant Professor

CERTIFICATE

This is to certify that the research work submitted herewith by Mrs. Shabari Sarkar Das as a thesis entitled “**Understanding the role of micro RNAs involved in seed physiology and related developmental processes using *Arabidopsis thaliana* as a model system**” for the degree of Ph. D. in science (Botany) of Vidyasagar University has been completed under the joint supervision of me and Dr. A. K. Nandi, Department of Botany & Forestry, Vidyasagar University during the period 2014 - 2018 and that no part of this work has been submitted for any other degree. I further certify that Mrs. Sarkar Das has followed all the rules and regulations pertaining to the award of Ph. D. degree as laid down by Vidyasagar University.

Prakash Karmakar
16/11/18

Prakash Karmakar

DR. PRAKASH KARMAKAR
ASSISTANT PROFESSOR
Department of Botany and Forestry
Vidyasagar University
Midnapore-721102



DEPARTMENT OF BOTANY & FORESTRY

VIDYASAGAR UNIVERSITY

MIDNAPORE - 721102 :: WEST BENGAL

Phone: (03222) 276554 /276555 Extn. 430/453

Ref. No.

Date 25th November, 2018

Certificate from the Supervisor

This is to certify that the thesis entitled “*Understanding the role of micro RNAs involved in seed physiology and related developmental processes using Arabidopsis thaliana as a model system*” submitted by Mrs. Shabari Sarkar Das, registered under this university and Research Scholar of the Dept. of Botany & Forestry, for the award of Ph. D. Degree, is entirely based on her own research works and findings under the joint supervision of myself and Dr. Prakash Karmakar, Assistant Professor, Dept. of Botany & Forestry, Vidyasagar University. It is also certified that neither full nor any part of this work has been submitted earlier for obtaining any degree or diploma or any other academic award under this university as well as elsewhere. She has also duly followed the rules and regulations for the award of Ph.D. degree under the Vidyasagar University.

Dr. Asis Kumar Nandi

Associate Professor

Supervisor of the Ph. D. work