

**“*IN VITRO* PLANT REGENERATION AND GENETIC  
TRANSFORMATION STUDIES IN GRAPEVINE: CRIMSON  
SEEDLESS”**

A THESIS

Submitted To The

**UNIVERSITY OF PUNE**

FOR THE DEGREE OF

**DOCTOR OF PHILOSOPHY IN BIOTECHNOLOGY**

BY

**AKULA NOOKARAJU**

**RESEARCH GUIDE: Dr. D.C. AGRAWAL**

**Plant Tissue Culture Division,  
National Chemical Laboratory,  
Pune - 411008, India**

**DECEMBER 2007**