DECLARATION

I, hereby declare that this thesis entitled “INVESTIGATIONS ON PHYSICO-MECHANICAL PROPERTIES OF COCONUT PALM FOR THE DESIGN AND DEVELOPMENT OF A COCONUT PALM CLIMBER” is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

Place: Tavanur **AYISHA MANGAT**

Date: **(2019-28-011)**

CERTIFICATE

Certified that this thesis entitled "INVESTIGATIONS ON PHYSICO-MECHANICAL PROPERTIES OF COCONUT PALM FOR THE DESIGN AND DEVELOPMENT OF A COCONUT PALM CLIMBER" is a record of research work done independently by Er. AYISHA MANGAT (2019-28-011) under my guidance and supervision and that it has not previously formed the basis for the award of any degree, diploma, fellowship or associateship to her.

Place: Tavanur

Date:

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-Ayisha Mangat

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SYMBOLS AND ABBREVIATIONS

%	: Percent
₹	: Rupees
∠	: Angle
°	: Degree
$^{o}C^{-1}$	: Per degree Celsius
3D	: Three dimensional
AICRP	: All India Coordinated Research Project
CDB	: Coconut Development Board
cm	: Centimeter
CPCRI	: Central Plantation Crops Research Institute
DBH	: Diameter at Breast Height
DC	: Direct Current
eg.	: Example
Eq	: Equation
et al.,	: And others
etc.	: And other similar things
η	: Efficiency
FEA	: Finite Element Analysis
FEM	: Finite Element Method
Fig.	: Figure
FIM	: Farm Implements and Machinery
FMPE	: Farm Machinery and Power Engineering
g	: Acceleration due to gravity
GBH	: Girth at Breast Height

GI	: Galvanized Iron
GKVK	: Gandhi Krishi Vigyana Kendra,
GoI	: Government of India
ha	: hectare
hp	: Horse Power
Ht	: Height
ICAR	: Indian Council of Agricultural Research
ICC	: International Coconut Community
in	: Inch
InDG	: India Development Gateway
IPR	: Intellectual Property Rights
IRIMEE	: Indian Railway Institute of Mechanical & Electrical Engineering
J $kg^{-1}{}^{o}C^{-1}$	: Joules Per Kilogram Per Degree Celsius
JAU	: Junagadh Agricultural University
KAU	: Kerala Agricultural University
KCAEFT	: Kelappaji College of Agricultural Engineering and Food Technology
KCAET	: Kelappaji College of Agricultural Engineering and Technology
kg	: Kilogram
kg m^{-3}	: Kilogram per cubic meter
kg-f	: Kilogram force
kN	: Kilo Newton
KVK	: Krishi Vigyan Kendra
kW $m^{-1}{}^{o}C^{-1}$	: Kilo watt per meter degree celsius
ln	: Natural log
m	: Meter
MegaPa	: Mega Pascal
mm^{-2}	: Per millimeter square
mm^{2}	: Millimeter square

$m\ s^{-}$	: Meter per second
MS	: Mild Steel
N	: Newton
n.d.	: No date
Nmm^{-2}	: Newton per millimeter square
nos.	: Numbers
P	: Power
ϕ	: Phase
π	: Pi
PLA	: Polylactic acid
PVC	: Polyvinyl chloride
rpm	: Rotation Per Minute
RS	: Recommended Standard
Rs.	: Rupees
Rs/hr	: Rupees / hour
RTTC	: Research Testing and Training Centre
S	: Second
SS	: Stainless Steel
t	: Ton
TCIA	: Tree Care Industry Association
TMHE	: Tractor Mounted Hydraulic Elevator
TMSPCC	: Tractor Mounted and Self-Propelled Coconut Climber
TNAU	: Tamil Nadu Agricultural University
V	: Velocity
viz	: Namely
WLL	: Working Load Limit