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This is to certified that the work contained in the thesis titled “**Preparation, characterization and mechanical properties of bio-composite materials**” by **Ms. Sushma Yadav** (Roll No. **16031011**), in partial fulfillment of the requirement for award of degree of **Doctor of Philosophy at Indian Institute of Technology (B.H.U) Varanasi**, is a record of her own work carried out under my supervision and guidance and that this work has not been submitted elsewhere for a degree.

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Sushma Yadav

My Thesis is Dedicated

To

My Beloved Family

*Their Blessings and Prayers are enduringly
with me to succeed in my life cycle.*

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Abbreviations

HCA (Hydroxycarbonate apatite)

HA, HAp (Hydroxyapatite)

PVA (Poly vinyl alcohol)

SBF (Simulated body fluid)

TEOS (Tetraethyl Orthosilicate)

TEP (Triethyl Phosphate)

Tris (Tris-hydroxymethyl aminomethane) buffer

MG 63 (Human osteosarcoma Fibroblast)

XRD (X- ray Diffraction)

FTIR (Fourier Transform Infrared Spectroscopy)

SEM (Scanning Electron Microscope)