

## EFFECT OF DIRECTION OF LOAD ON FLEXURAL STRENGTH OF PINUS RADIATA WOOD

*Ezhumalai R<sup>1</sup>, Karthik Ramesh Surapura<sup>2</sup> & Sharma Sukh Dev<sup>3</sup>*

<sup>1,3</sup>Research Scholar, Forest Product Division, Forest Research Institute, Dehradun, India

<sup>2</sup>Research Scholar, Deemed University, Wood Science & Technology Student, Forest Research Institute, Dehradun, India

**Received: 01 Feb 2021**

**Accepted: 02 Feb 2021**

**Published: 03 Feb 2021**

### **ABSTRACT**

*Empirical study of stiffness (modulus of elasticity-MoE) and Bending strength/flexural strength (modulus of rupture-MoR) in wood, mainly on radial and Tangential surface of Pinus radiata wood were evaluated. Here loading in the radial direction means that load is applied to the tangential surface and loading in the tangential direction means that load is applied to the radial surface. Radiata pine is commonly regarded as 'medium' density softwood, with typical average tree basic density values of 350-550 kg/m<sup>3</sup>. The strength properties vary with species to species and application of direction of load. Loading direction appreciably affects the bending properties remarkably due to the anisotropic /orthotropic nature of timber. The bending strength of timber when loaded parallel to the direction of load is greater than that of timber loaded perpendicular to the direction of load. It was observed that always MoR have greater value in Radial surface and MoE have greater value in tangential surface. The direction of application of load has an appreciable effect on strength properties of wood. While this is generally attributable to the presence of medullary rays in the radial direction. The ratio of flexural strength values varied from 8 % to 10 % for Pinus radiata.*

**KEYWORDS:** *Bending Strength, Modulus of Elasticity (MOE) and Pinus Radiata*