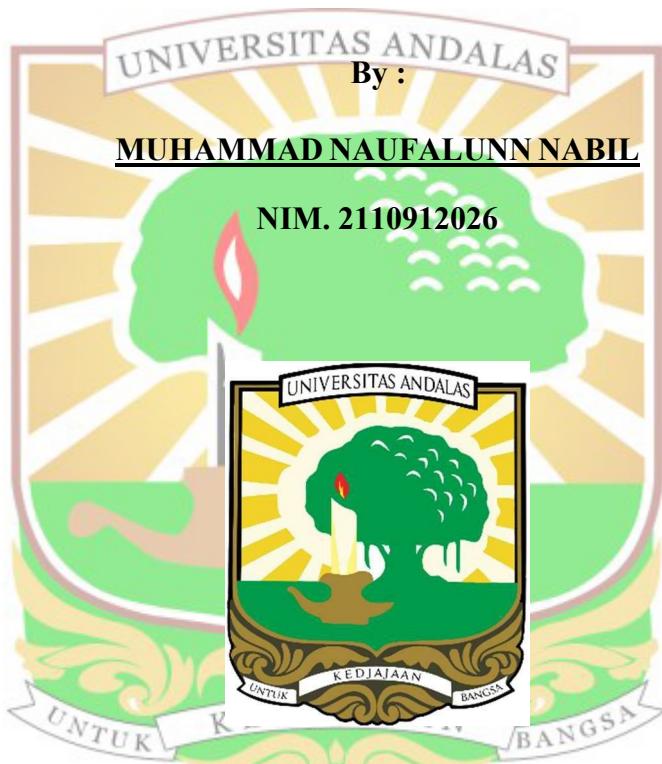


FINAL PROJECT PROPOSAL

TENSILE STRENGTH ANALYSIS OF PURPLE SWEET POTATO STARCH/PVA/BAJAKAH TAMPALA COMPOSITE FILMS WITH VARIATION IN COMPOSITION RATIOS



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ABSTRACT

The increasing threat of plastic pollution has led to the development of biodegradable packaging materials as sustainable alternatives to conventional plastics. This study investigates the mechanical and functional properties of biodegradable films made from a combination of purple sweet potato (*Ipomoea batatas*) starch, polyvinyl alcohol (PVA), and Bajakah tampala extract. Purple sweet potato starch offers biodegradability and antioxidant properties due to its anthocyanin content, while PVA enhances mechanical strength and water resistance through hydrogen bonding. Bajakah tampala extract contributes additional antioxidant, antimicrobial, and UV-blocking properties. The films were prepared with varying Bajakah Tampala concentrations and characterized for tensile strength, elongation at break, and water resistance using ASTM D638-14 standards. The results are expected to provide insights into the optimal composition for producing eco- friendly packaging films with enhanced structural integrity and functional performance, contributing to the advancement of sustainable material technologies.

Keywords : Biodegradable film; purple sweet potato starch; PVA; Bajakah tampala; Mechanical properties