

**EXTRACTION OF PHENOLIC COMPOUNDS
FROM AVOCADO PEEL (*Persea americana*)
AND DEVELOPMENT OF AVOCADO-BASED HAIR OIL**

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This Final Year Project Report entitled “**Extraction of Phenolic Compounds from Avocado Peel (*Persea americana*)**” was submitted by Nur Shara Aina Binti Muhamad Rohadi in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Science, and was approved by

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ABSTRACT

EXTRACTION OF PHENOLIC COMPOUNDS FROM AVOCADO PEEL (*Persea americana*) AND DEVELOPMENT OF AVOCADO-BASED HAIR OIL

The growing demand for natural, sustainable, and safe cosmetic products has driven research into plant-based ingredients with antioxidant benefits. One promising but underutilized resource is the avocado peel (*Persea americana*), an agro-industrial by-product typically discarded during fruit processing. Rich in phenolic compounds such as flavonoids and tannins, avocado peel exhibits strong antioxidant properties that may benefit hair and scalp health. This project aims to extract phenolic compounds from avocado peel using ethanol as a solvent for Soxhlet extraction method and develop a natural avocado-based hair oil. This study also evaluates the antioxidant potential and physical stability of the hair oil. The antioxidant results showed promising values, with DPPH scavenging activity exceeding 85% at the highest tested concentration of 100 ppm, and TPC and TFC confirming the presence of bioactive compounds. The formulated hair oil exhibited smooth consistency, stable pH of 5.3, low moisture content (2.5%), and retained good physical stability over short-term storage, with only slight phase separation observed under high light exposure. These findings suggest that avocado peel extract can be effectively utilized as a natural antioxidant source in haircare formulations. The product shows potential for commercialization with further optimization of its stability and shelf-life. Future studies could explore advanced emulsification techniques, long-term stability testing, and clinical evaluation of scalp and hair benefits to support broader application in the natural cosmetic industry.

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