

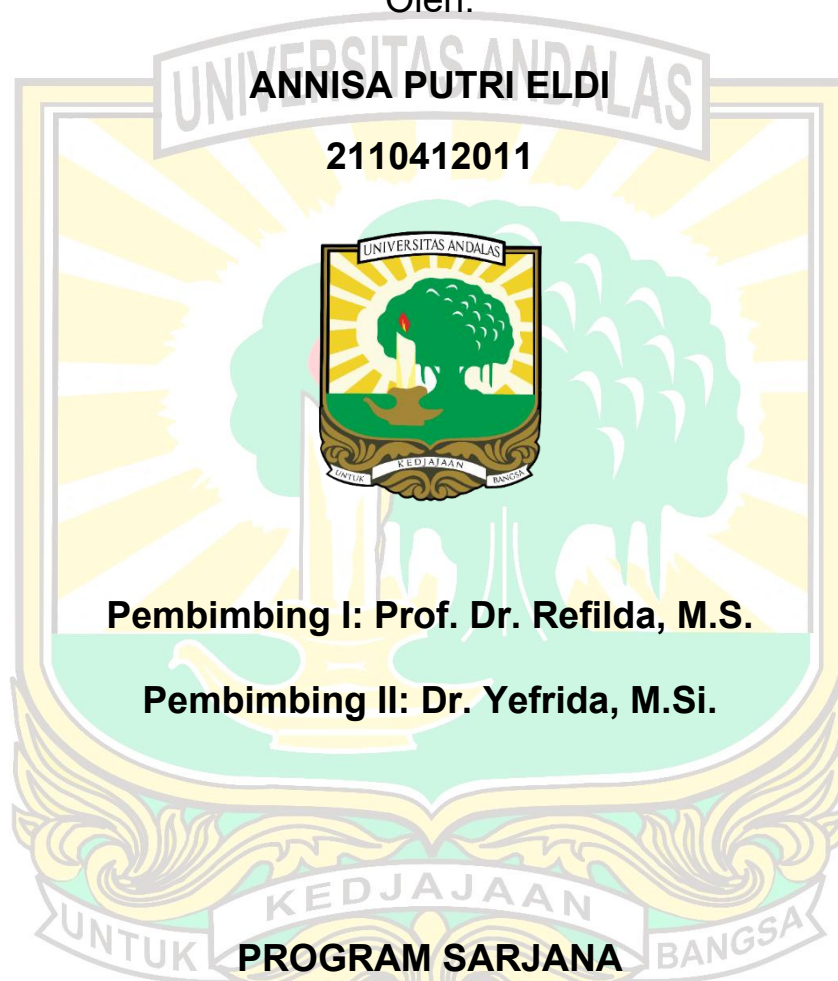
**OPTIMASI EKSTRAKSI ANTOSIANIN DARI UBI JALAR UNGU
(*Ipomoea batatas* L.) DENGAN METODE ULTRASONIKASI SERTA
UJI STABILITAS WARNA YANG DIHASILKAN**

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ABSTRACT

Optimization of Anthocyanin Extraction from Purple Sweet Potato (*Ipomoea batatas* L.) Using Ultrasonic-Assisted Method and Evaluation of the Resulting Color Stability

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Purple sweet potato (*Ipomoea batatas* L.) is a local food source rich in anthocyanin pigments, a group of natural flavonoid compounds that act as antioxidants and natural colorants, making them a promising alternative to synthetic dyes that may pose health risks. Although anthocyanins are widely utilized in food products, their major limitation lies in their color instability, which is highly influenced by factors such as temperature, heating duration, and storage time. This study aimed to optimize the extraction process of anthocyanins from purple sweet potatoes using the Response Surface Methodology (RSM), with extraction time and solvent volume as the main parameters. The extraction was performed using the ultrasonication method, which employs high-frequency sound waves to disrupt plant cell structures and enhance pigment release. Preliminary optimization using the One Factor At a Time (OFAT) approach indicated optimal conditions at 40 minutes of extraction time and 40 mL of solvent volume, which were then used as the central points for the Central Composite Design (CCD) experimental setup. The optimization results obtained through RSM revealed that the optimal extraction conditions were achieved at 50 minutes of extraction time and 50 mL of solvent volume. Under these conditions, the purple sweet potato extract exhibited an anthocyanin content of 59.68 mg/100 g FW. Furthermore, anthocyanin stability tests demonstrated that the pigment remained more stable at heating temperatures between 30–60°C, with the best thermal stability 5 - 10 minutes of heating, and it retained its color more effectively when stored at low temperature (4°C) compared to room temperature (28°C). These findings indicate that the ultrasonication technique is an effective extraction method for enhancing anthocyanin yield and stability, highlighting its potential application as a safe and environmentally friendly natural colorant in the food industry.

Keywords: Purple sweet potato, anthocyanin content, Ultrasonic-assisted extraxction, OFAT, RSM.

