

**Optimization of ultrasound assisted extraction conditions on fingerroots
(*Boesenbergia rotunda*) rhizome and its antioxidant activity**

ABSTRACT

Fingerroot scientifically known as *Boesenbergia rotunda*, is a widespread herb in Southeast Asia and South Asia. This experiment was conducted to investigate the effect of temperature (40 to 60 °C) and time (30 to 60 min) of the fingerroot extract yield and its antioxidant activity using Ultrasound-Assisted Extraction (UAE). The study compared the performance of UAE with the traditional maceration method in terms of extract yield and antioxidant activity. UAE, recognized as a more advanced and innovative extraction method, demonstrated superior efficiency in terms of being time-saving, cost-effective, and faster than maceration. The optimized UAE conditions were identified at an extraction temperature of 48 °C for 42.1 minutes, resulting in an extract yield of 8.42% and an antioxidant activity of 85.90%. In conclusion, the study affirms that UAE offers a highly effective and efficient approach for extracting valuable compounds from fingerroot, showcasing its potential for applications in various industries.