

## Curcumin Content Improvement of Ethanol Extract of Temulawak (*Curcuma xanthorrhiza* Roxb.) using Liquid-liquid Extraction

Purwantiingsih Sugita<sup>1</sup>, Bambang Srijanto<sup>2</sup>, Imam Paryanto<sup>2</sup>, and Kamilah Hasan Afif<sup>2</sup>

<sup>1</sup>Chemistry Department, Faculty of Mathematics and Natural Sciences, Bogor Agricultural University

<sup>2</sup>Centre of Medical and Pharmaceutical Technology, BPPT Jakarta

Email: ugiect@yahoo.com

### ABSTRACT

Temulawak (*Curcuma xanthorrhiza* Roxb.) is a rhizome commonly used as raw material in herbs and medicines production. Efficacy of temulawak to treat diseases originates from its curcuminoid compounds including curcumin and desmethoxycurcumin. Various treatments were applied to extract curcumin from temulawak. In this research, temulawak was extracted once and twice by using hexane with sample to solvent ratio of 1:1, 1:2, and 1:3 for 10, 20, and 30 minutes. The extracts were then concentrated with rotary evaporator at 55 °C and the curcumin contents were measured. The optimum curcumin content in temulawak for single extraction was obtained at sample to solvent ratio of 1:3 and extraction time of 30 minutes. On the other hand, the optimum curcumin content in temulawak for two times of extraction was obtained at sample to solvent ratio of 1:3 and extraction time of 15 minutes 50 seconds. Validation results of curcumin content using response surface method were 23.9209% and 31.1796% for single and double extraction, respectively. The actual curcumin content obtained with visible spectrophotometer were 22.30% and 30.40%, respectively.

**Keywords:** Temulawak, curcumin, extraction, optimization, response surface method.