ABSTRACT

THE EFFECT OF TEMPERATURE AND TIME OF ULTRASOUND ASSISTED EXTRACTION ON CONCENTRATION OF TOTAL ANTHOCYANINES, PHENOLICS AND ANTIOXIDANT ACTIVITIES OF ROSELLE CALYCE EXTRACT (*Hibiscuss sabdariffa* L.)

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Thermal assisted extractions such as maceration, boiling, and soxhletation of active constituent from plants hava been widely studied and used including roselle (*Hibiscuss sabdariffa* L.). However these techniques take several hours and cause degradation of active compounds present in plant material. Ultrasound assisted extraction has been proposed as alternative to conventional extraction, providing higher recovery of targeted compounds with shorter time and lower solvent consumption. The aims of this study were to determine the optimal temperature and time of ultrasound assisted extraction of roselle calyces; and comparing its effectivity to macerated extraction. This study was arranged in a Randomized Complete Block Design (RCBD) in factorial (3 x 3) with 3 replications. The first factor was temperature (30, 40 and 50 ^{0}C) and the second factor was extraction time (30, 40 and 50 min). The results showed that temperature and time of ultrasound assisted

extraction did not affect significantly on concentration of anthocyanines, phenolics, and antioxidant activities of roselle extract. Optimal temperature and time of ultrasound assisted extraction were suggested 40^{o}C and 30 minute. Ultrasound assisted extraction was more effective than maceration shown by higher average concentration of anthocyanines and fenolics of 66,61 mg/L and 1262 mg/L compared to 35,46 mg/L and 1050 mg/L respectively. Whereas antioxidant activities of ultrasound assisted extraction Roselle extract was lower than maceration of 42,71% compared to 56,53%.

Keywords : Sonication, roselle, anthocyanin, phenolic, antioxidant activity.