

## **Supercritical carbon dioxide fluid extraction of *Hibiscus cannabinus* L. seed oil: A potential solvent-free and high antioxidative edible oil**

### **ABSTRACT**

The supercritical fluid extraction (SFE) trends and antioxidant activities of *Hibiscus cannabinus* seed oils were studied. SFE results indicate that extraction pressure is the major factor determining the oil yield. In comparison, classic Soxhlet extraction (SOX/L) yielded higher oil content than SFE ( $P < 0.05$ ). However, no significant differences in oil content were observed in SFE at 600 bars/80 °C, rapid Soxhlet extraction (SOX/S) and conventional ultra-sonic assisted solvent extraction (SONIC) ( $P > 0.05$ ). Antioxidant activities of *H. cannabinus* seed oils were compared with 7 types of commercial edible oils. DPPH scavenging activity test indicated that *H. cannabinus* seed oil extracted by SFE at 200 bars/80 °C possessed the highest antiradical activity whereas beta-carotene bleaching (BCB) assay revealed that all *H. cannabinus* seed oils (except for SFE at 400 bars/80 °C and 600 bars/80 °C) exhibited higher antioxidant activity than all commercial edible oils ( $P < 0.05$ ). Thus, SFE - *H. cannabinus* seed oil may serve as an excellent source of solvent-free edible oil with high antioxidant properties.

**Keyword:** Antioxidant activity; *H. cannabinus* seed oil; Supercritical carbon dioxide extraction.