Ultrasonic Assisted Extraction Polyphenols And Antioxidant From Nigella Sativa Seed

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ABSTRACT

This paper presents an ultrasonic assisted extraction study of essential oil from Nigella sativa seeds. It was found that the extraction of phenolic, flavonoid and antioxidant favours pure solvent, i.e. ethanol and methanol.

Extraction of phenoilc, flavonoid and antioxidant, increases with increasing temperature until 50°C but reduced thereafter. Increasing the sonication power from 112 W to 224 W improved extraction of phenolic, flavonoid

and antioxidant markedly, although a further increase to 277 W is not an improvement. A lower sonication frequency (35 kHz) yielded higher polyphenols and antioxidant content as opposed to the higher frequency

(53 kHz). The highest total phenolic content (0.66 mg GAE/g sample), total flavonoid content (1.84 µg QE/g sample) and antioxidant activities (63.15%) using ethanol at sonication power of 224 W, extraction time of

30 minutes and temperature of 50°C.

KEYWORDS: Nigella sativa; ultrasonic assisted extraction; flavonoid; phenolic; antioxidant