



A COMPARATIVE STUDY ON IMPACT OF BLANCHING AND AUTOCLAVING ON NUTRACEUTICAL PROFILE OF *HELIANTHUS TUBEROSUS* L. (JERUSALEM ARTICHOKE)

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ABSTRACT

Helianthus tuberosus, a kind of herbaceous perennial tuber has high amount of soluble fibres and biologically active components that possesses strong antioxidant activity, anti-inflammatory, antifungal, antimicrobial, anti-diabetic, anti-obesity and anticancer activities. The present study was undertaken to explore the influence of blanching and autoclaving processing methods on nutraceutical profile of *Helianthus tuberosus* (*Ht*). Soluble fibres content (inulin and fructo-oligosaccharides) and antioxidant profile (total phenols content, total flavonoids content, ascorbic acid and DPPH radical scavenging activity as well as FRAP activity) were performed with slight modification in standard protocol. The study results revealed that blanched-*Ht* extract had significantly decrease inulin (21.53 ± 0.16 g/100ml) and fructo-oligosaccharides content (4.28 ± 0.17 g/100g) followed by autoclaving (17.43 ± 0.25 g/100ml and 3.76 ± 0.19 g/100g) when compared with unprocessed-*Ht* extract (23.29 ± 0.16 g/100ml and 5.31 ± 0.45 g/100g) at $p < 0.05$ level. Unlike this, blanched-*Ht* extract had significantly higher total phenols content (9.36 ± 0.12 mgGAE/100g), total flavonoids content (3.30 ± 0.36 mgQE/100g) and ascorbic acid (17.71 ± 0.81) followed by autoclaving (8.93 ± 0.16 mgGAE/100g, 4.38 ± 0.22 mgQE/100g and 14.36 ± 0.31 mg/100g) as compared to unprocessed-*Ht* extract (7.91 ± 0.09 mgGAE/100g, 3.30 ± 0.28 mgQE/100g and 21.83 ± 0.64 g/100g). Likewise, blanched-*Ht* extract exhibits highest antioxidant capacity with IC_{50} value (21.07μ g/ml) followed by autoclaved-*Ht* extract (23.1μ g/ml) when compared with unprocessed-*Ht* extract (26.2μ g/ml). The FRAP activity of Unprocessed-*Ht* was 16.40 ± 0.33 which was significantly increased by 57.5% (Blanched-*Ht*) and 15.5% (Autoclaved-*Ht*). Hence, the present study suggests that blanched *Ht* aqueous extract would be appropriate to possess pharmaceutical properties due to high nutraceutical content.