EFFECT OF COOKING ON ASCORBIC ACID CONTENT, TOTAL POLYPHENOL CONTENT AND ANTIOXIDANT ACTIVITY OF SELECTED VEGETABLES

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ABSTRACT

The present study was carried out to determine the effect of cooking on Ascorbic Acid Content, Total Polyphenol Content and Antioxidant Activity of selected vegetables. Vegetables: Beetroot, Cabbage, Eggplant, Green bean, Onion and Spinach obtained from local market of Sri Lanka were subjected to cook for 3 minutes and 7 minutes at 78±2 °C. Effect of cooking was resulted significant difference with respect to the existing values of tested parameters in the raw vegetable extracts. Ascorbic Acid Content was determined using 2, 6- Dichlorophenol-Indophenol Visual Titration method and Total Polyphenol Content of vegetable extracts were determined using Folin-Ciocalteu method. Antioxidant Activity of vegetable extracts were measured using DPPH radical scavenging assay and expressed as IC50 values. The Ascorbic Acid Content varied widely among the raw vegetables from 42.40 mg ml^{-1} to 7.07 mg ml^{-1} and with the effect of cooking tested values were drastically reduced in all the vegetables. Total Polyphenol Content in raw vegetables showed both positive and negative correlation with cooking. Beetroot, Cabbage and Eggplant are increased Total Polyphenol Content with the cooking by 12.28%, 16.54%, 19.48% respectively. Antioxidant Activity of Eggplant was increased after cooking by 22.08% and all other vegetables were reduced their Antioxidant Activity under the same conditions. Results of Antioxidant Activity under raw treatment revealed that the selected vegetables can be considered as vegetables with extremely high antioxidant potential. Positive correlation with cooking was found between Antioxidant Activity and Total Polyphenol Content in Beetroot, Cabbage and Eggplant. Resulted data under cooking effect on the Antioxidant Activity is important to improve existing natural Antioxidant Activity of selected vegetables. Alterations in cooking of vegetables can utilize the natural Antioxidant Activity while improving the human health against non-communicable diseases.

Key words: Ascorbic Acid Content, Total Polyphenol Content, Antioxidant Activity, Cooking, Vegetables