The Effects of Boiling, Stir-Frying and Microwave Cooking on the Antioxidant Potential of Local Brinjal Variety (*Solanum melongena*) Available in Jaffna District

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Abstract: Brinjal (*Solanum melongina*) belonging to Solanaceae family is a rich source phytochemicals such as phenolic compounds (caffeic and chlorogenic acid) and flavonoids (nasunin). These phytochemicals are antioxidants, thus provide myriad of health benefits. However the antioxidant potential of vegetables is influenced by cooking. This study investigated the effects of different cooking methods on the antioxidant properties of a local brinjal variety. Fresh brinjal was cut in to small pieces and subjected to different cooking methods (boiling at 100ºC for 5 min, microwave cooking at 560W for 2 min and stir-frying at 230ºC for 10 min). Ethanol (70 %, v/v) was used as the solvent to extract the antioxidants. The highest total phenolic content (14.89±1.84 mg gallic acid equivalent /g dry matter), total flavonoid content (13.15± 0.83 mg catechin equivalent/g dry matter) and total antioxidant capacity (65.0±1.96 mg ascorbic acid equivalent/g dry matter) were observed in microwave cooked brinjal compared to boiled, stir-fried and fresh brinjal. Microwave cooked and stir-fried brinjal showed higher DPPH radical scavenging activity than fresh and boiled brinjal. In addition, there was a strong positive correlation (r = 0.90) between total phenolic content and total antioxidant capacity in raw and cooked brinjal. These results revealed that the cooking of brinjal changed the antioxidant properties and microwave cooking of brinjal is the better method than other two methods to preserve or enhance the antioxidant properties while boiling and stir-frying reduce the antioxidant potential of brinjal.

Keywords: Antioxidants, Brinjal, Flavonoid content, Phenolic content