Changes in Total Antioxidant Activities of Sri Lankan Rice (*Oryza sativa* L.) during Domestic Cooking and Antioxidative Benefits of Rice Consumption in the Daily Diet

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Rice (*Oryza sativa L.*) is renowned for its richness in bioactive compounds, which can be altered by cooking. This research explored the effects of cooking on the antioxidant activities of Sri Lankan rice varieties and assessed antioxidant benefits of rice consumption in Sri Lankan households. Twenty-five raw grain composites underwent a standardized domestic cooking process. Aqueous crude extracts from lyophilized grain powders (n_1=*75*) from raw, washed, and cooked stages were assayed for the Radical Scavenging Activity (RSA) and Total Antioxidant Capacity (TAC) and expressed as L-Ascorbic Acid Equivalents on dry weight (AAE mg dw), and wet weight basis (AAE mg ww), per 1g and 100g portions. RSA from raw, washed to cooked grain fractions were; 0.696 (±0.107), 0.415 (±0.082) and 0.275 (±0.112) mgg^{-1}dw, respectively, resulting a % loss of RSA during washing and cooking (p<0.05) at 40.15 (±4.97) and 61.81 (±11.08). TAC decreased as 0.279 (±0.074), 0.136 (±0.073) and 0.076 (±0.057) AAE mgg^{-1} dw corresponding to %loss (p<0.05) of 45.46 (±14.78) and 74.34 (±11.92). A standard 100 g cooked rice contained RSA and TAC of 14.55 (±6.45) and 4.07 (±3.19) AAE mg100g-1ww respectively. A mean (±*SD*, n_2=41) rice consumption of 267.41 (±60.66) g $person^{-1}meal^{-1}$ contributed to 38.88(±17.27) and 10.90 (±8.53) RSA and TAC respectively. RSA and TAC values were higher in red pericarp grains than white (p<0.05) and in traditional varieties than in improved varieties (p_{RSA} >0.05; p_{TAC}<0.05). Sri Lankan rice is a reliable source for routine intake of natural antioxidants. However, domestic cooking processes significantly reduce antioxidants in raw rice grains.

Keywords: *Rice, Antioxidant Activity, Cooked Grains, Consumption, Nutraceutical Properties*