

**IS RICE A PREDISPOSING FACTOR FOR CHRONIC KIDNEY DISEASE OF UNKNOWN ETIOLOGY IN *MEDAWACHCHIYA*, SRI LANKA? : A COMPARATIVE STUDY ON SOME HEAVY METALS, VITAMINS AND ANTIOXIDANTS**

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The emergence of a new form of chronic kidney disease of unknown etiology (CKDu) has become a catastrophic health crisis in North Central Province (NCP) of Sri Lanka. Recently, the highest CKDu prevalence was observed in *Medawachchiya* Divisional Secretariat division in NCP. The current scientific evidence support the fact that oxidative stress and chronic exposure to heavy metals could be causative factors for CKDu and diet plays a major role in disease development. Hence present comparative study aimed to determine the levels of antioxidants,  $\beta$ -carotene,  $\alpha$ -tocopherol, Cadmium (Cd), and Arsenic (As), in steamed rice samples consumed by CKDu patients (in stage III and IV) and non-CKDu subjects (control group) in *Medawachchiya*. Twenty five commonly consumed home cooked rice samples were randomly obtained from each group. Ultraviolet visible and atomic absorption spectrophotometers were used to determine  $\beta$ -carotene and Cd, As concentrations respectively. Thea-tocopherol was determined using high performance liquid chromatography. Antioxidant capacity was determined using 2,2-azinobis-(4-ethylbenzothiazoline-6-sulphonate) assay. The results revealed that there was no significant difference between ( $p > 0.05$ ) mean concentration of Cd and As in rice samples consumed by CKDu patients (0.040 and 0.030 mg kg<sup>-1</sup>) and control group (0.037 and 0.014 mg kg<sup>-1</sup>) respectively and were lower than the recommended maximum permissible level given by the World Health Organization. No significant difference ( $p > 0.05$ ) was observed in mean concentration of  $\beta$ -carotene in rice samples consumed by CKDu patients and control group. Further, total antioxidant capacity and  $\alpha$ -tocopherol levels were negligible in all the cooked rice samples studied. In conclusion, there is no notable discrepancy in levels of Cd, As,  $\alpha$ -tocopherol and  $\beta$ -carotene of rice samples consumed by CKDu patients and non-CKDu subjects in *Medawachchiya*.

**Keywords:** Antioxidants, Arsenic, Cadmium, Chronic kidney disease of unknown etiology, Cooked rice