

**Nitrate - N content of hydroponically and conventionally grown vegetable crops**

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Growing vegetables under protected environment using the hydroponic system has become popular in Sri Lanka. Many research findings show that crops grown in solution culture accumulate  $\text{NO}_3\text{-N}$  (Wright and Davison, 1964), and excess nitrate is said to be harmful to human health. Nitrate accumulation is the greatest when plants are grown under low light intensity with an ample supply of  $\text{NO}_3\text{-N}$  (Veen & Kleinendorst, 1985). Very low or excessively high temperatures and relative humidity may also influence nitrate accumulation in crops (Gomm, 1979). In this study the  $\text{NO}_3\text{-N}$  contents of several vegetable crops commonly grown in hydroponic culture under protected environment were determined and compared with those grown under conventional open field system. Nitrate nitrogen was determined by extracting crops with 2N  $\text{CaCl}_2$  and 10% trichloroacetic acid followed by Kjeldahl distillation using MgO and Devarda's alloy. Results showed that  $\text{NO}_3\text{-N}$  contents of all crops were significantly higher ( $P < 0.05$ ), in the hydroponic system than in the conventional system, on both fresh and dry weight basis. Based on these results, the daily nitrate nitrogen intake of an adult was estimated and the values obtained were found to be within acceptable limits of the Commission of the European Communities Scientific Committee for Food (MAFF, 1998). Continuous monitoring and advising farmers on proper fertilizer management practices will help to maintain  $\text{NO}_3\text{-N}$  levels of hydroponically grown vegetables.