

Title Nitrate and nitrite contents and postharvest quality of choy sum (*Brassica rapa* Chinensis Group) during storage

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Abstract

Nitrates and nitrites are commonly used as fertilizers and food preservatives. Their presence in manufactured meat and water are carefully monitored under Food Regulations 1985 due to their potential adverse health effects on human. Few people perceived that the major source of dietary nitrates is from vegetables. Nitrates accumulate at a high level in leafy vegetables whereas nitrite content is extremely low in fresh leafy vegetable. However, such a change could occur under refrigerated storage. An experiment was conducted to verify the reliability of leafy vegetables stored under refrigerated temperature since consumers prefer to keep vegetables in the refrigerator before consumption. Fresh, conventionally and organically produced Choy Sum vegetables were obtained from the Selangor Wholesale Market and Zenxin AgriOrganic Food (KL) Sdn. Bhd, respectively. The leafy vegetables were cleansed in water, packed in perforated PE bags and stored in a domestic refrigerator at 5 °C for 9 days. Nitrate and nitrite contents, weight loss, firmness, leaf colour, soluble solids concentration, titratable acidity, and ascorbic acid content were measured every three days. The initial nitrate content in the Choy Sam vegetables produced conventionally and organically were 10,789 mg.kg⁻¹ and 10,667 mg.kg⁻¹, respectively. However, nitrate and nitrite contents showed no significant changes during refrigerated storage. The organic Choy Sum did not show superior physical quality characteristics in terms of weight loss, firmness and colour during refrigerated storage compared to the conventional Choy Sam. Organic Choy Sum had shorter shelf life than the conventional Choy Sum. The ascorbic acid content retained during storage was higher in organic Choy Sum than conventional Choy Sum. It is recommended that organic Choy Sum be consumed within three days of storage, before it wither and loses its fresh appearance. However, conventional Choy Sum could be consumed within four days of storage, as the ascorbic acid decreased drastically after 4 days of storage.