Food Quality and Nitrites Content in Toona vegetables

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Food quality plays an important role in human health. Nitrites are known to cause several health problems, such as decreasing the oxygen carrying capacity of the blood, formation of nitro amines, which are known as one of the most common causes of cancer. Nitrates intake over 0.3 g/d may cause death. In most countries, nitrites content in food is restricted to a minimum level, e.g. ≤3 mg/kg in meet, ≤4 mg/kg in vegetables, and ≤70 mg/kg in caned sausages (according to the molecular weight of $NaNO_2$).

Toona tree seedlings and buds are widely used leafy vegetables in China. Nitrite contents of Toona tree seeds and seedlings were investigated in relation to food quality. A method of nitrite-N-(1-naphthyl)ethylene diamine dihydrochloride spectrophotometric determination was applied to the tissues of dormant seeds, sprouting seeds, young seedlings at cotyledon stage, and fully grown seedlings, and localized at different parts of the seedlings. We also measured nitrite contents of the seedlings grown indoor and outdoor.

In general, endogenous nitrite content decreases during the growth. Nitrite content level is highest in the seed, and lowest in the fully grown seedling. At cotyledon seedling stage, nitrite content in the root is higher than in the stem (embryo axis), whereas at the fully grown seedling stage, nitrite content in the root becomes lower than in the stem. Nitrite content in the seedlings grown indoor is higher than in those grown outdoor. Unfortunately, in no case the nitrite contents were found less than 27 mg/kg. There is a press need for Toona tree breeding to reduce nitrite level, thus, to improve food quality and human heath.

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