



The Effect of Storage Condition on Nitrite and Nitrate Content in Lettuce (*Lactuca sativa L.*)

Jansen Silalahi^{*1}, Atikah Fattah Nasution¹, Nahitma Ginting¹,
Yosy C.E. Silalahi²

¹Faculty of Pharmacy University of Sumatra Utara, Medan, Indonesia, 20155

²Department of Pharmacy University of Sari Mutiara Indonesia,
Medan, Indonesia, 20123

Abstract : Vegetables are the main sources of nitrate and nitrite from food. The content of nitrate and nitrite in vegetables is affected by many factors including storage conditions. The purpose of this study was to investigate the effect of storage temperature and time on the nitrite and nitrate levels in lettuce.

The lettuce used in this study was freshly harvested, cleaned and then stored in two different conditions; storage was conducted in refrigerator at temperature of 10⁰C and ambient temperature at about 28⁰C and storage time was 48 hours. Nitrate and nitrite content in lettuce was analyzed periodically at every 4 hours. The assay of the nitrite and nitrate was carried out by visible spectrophotometry using N-(1-naphthyl) ethylene diamine dihydrochloride (NED) as coloring reagent and measured at maximum absorbance at wavelength of 540 nm.

The results of this study shows that during storage for 48 hours at room temperature the levels of nitrate increased from initial level of 6.07 mg/kg to 70.83 mg/kg, and nitrite levels increased from initial level of 22.63 mg/kg to 48.14 mg/kg. Levels of nitrate and nitrite at refrigerator temperature (10⁰C) storage the level of nitrate increased from initial level of 3.06 mg/kg to 64.42 mg/kg, and level of nitrite increased from 21.89 mg/kg to 40.08 mg/kg.

Based on the results of present study indicate that during storage the level of nitrate and nitrite consistently increased. The higher the temperature and the longer storage time resulted in the higher increasing levels of nitrate and nitrite in the lettuce, and the temperature of storage was found to be more influential.

Keywords: lettuce, nitrite, nitrate, storage, spectrophotometer.