



## Magnetic Field Radiation Extremely Low Frequency (ELF) is As Alternative Method of Tomatoes Preservation

Sudarti and Putri Ma'rufiyanti

Physics Department Teacher Training and Education Faculty Jember University  
Jl. Kalimantan I FKIP Universitas Jember 68121

*Extremely Low Frequency Magnetic Field* (ELF-MF) is non-ionizing and non-thermal radiation which its benefit can be felt in our life. The intensity of magnetic field emission 1500 mT during 0,1,5,10 and 15 minutes can increase the contents of N, K, Ca, Mg, Fe, Mn and Zn ion in dates ((*Phoenix dactylifera*) (Dhawi dan Al-Khayri, 2009). Besides, the magnetic field emission 0,2 mT in immersion of tomatoes seeds was proven can increase size of parenkim cell, xylem, and the width of tomatoes stomata (Sari, 2011). So that the objective of this research was to prove that ELF magnetic field emission can maintain level of vitamin C in the tomatoes. The sample in this research were the fresh tomatoes from farmer. There were seven sample groups contained of control sample (K), group of ELF magnetic field emission 300 uT and time variation 10 minutes (P1-10), 50 minutes (P1-50), and 90 minutes (P1-90). Group of ELF magnetic field emission 500 uT and time variation 10 minutes (P2-10), 50 minutes (P2-50), and 90 minutes (P2-90). The research result showed that pH of tomato which was affected by ELF magnetic field was higher than pH of the control group. In addition, the level of vitamin C in the tomato which was affected by ELF magnetic field in 500 uT intensity was higher than the level of vitamin C in the control group. Therefore, it can be concluded that the ELF magnetic field emission can be useful as cheap and safe alternative method of food preservation.

**Keywords:** non ionizing radiation, extremely low frequency, magnetic field, pH, vitamin C level

Poster

Sudarti  
University of Jember, Indonesia  
E-mail: [dr.sudarti\\_unei@yahoo.com](mailto:dr.sudarti_unei@yahoo.com)