

# Comparison of digesting capacity of nitric acid and nitric acid-perchloric acid mixture and the effect of lanthanum chloride on potassium measurement

Molla Rahman Shaibur<sup>1</sup>, Abul Hasnat Md. Shamim<sup>2, 3</sup>, SM Imamul Huq<sup>4</sup> and Shigenao Kawai

<sup>1</sup>Department of Environmental Science & Health Management, Jessore Science & Technology University, Bangladesh <sup>2</sup>School of Agriculture & Rural Development, Bangladesh Open University, Gazipur-1705, Bangladesh <sup>3</sup>Graduate School of Environmental Science, Okayama University, 1-1, Tsushima-Naka, 3-Chome, Okayama700-8530, Japan <sup>4</sup>Department of Soil, Water & Environment, University of Dhaka, Dhaka-1000, Bangladesh <sup>5</sup>The United Graduate School of Agricultural Sciences, Iwate University, Morioka 020-8550, Japan

### Abstract :

Abstract: Nitric acid-perchloric acid mixture is the renowned digesting reagent in the scientific world of plant nutrition. Beside this, some other inorganic acids can be used as the digester of plant samples. Therefore, this experiment was conducted to find out if there is any difference between the digesting capacity of nitric acid (HNO<sub>3</sub>) and nitric acid-perchloric acid mixture (HNO<sub>3</sub>-HClO<sub>4</sub>) or not. The hydroponic experiments were conducted with barley (*Hordeum vulgare* L. cv. Minorimugi) and rice (*Oryza sativa* L. cv. Akihikari) seedlings. At suitable stage, the plant samples were collected, washed with deionized water, separated into shoot and root, dried, grinded and then divided into two groups for shoot and root individually for two types of seedlings. One group was for only HNO<sub>3</sub> acid and the other group was for HNO<sub>3</sub>-HClO<sub>4</sub> acid mixture. Phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), manganese (Mn), zinc (Zn) and copper (Cu) were measured after digesting the samples. There was no significant difference between the digesting capacity of HNO<sub>3</sub> acid and HNO<sub>3</sub>-HClO<sub>4</sub> acid mixture. Potassium was measured by diluting the samples (200-600 times) containing lanthanum chloride (LaCl<sub>3</sub>) or without LaCl<sub>3</sub>. Lanthanum chloride did not have any significant effect on K measurement in this dilution system. [Nature and Science 2010;8(5):157-162]. (ISSN: 1545-0740).

### Key Word :

Concentration, Lanthanum chloride, Nitric acid and nitric acid-perchloric acid mixture

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