

3<sup>rd</sup> Global Summit on

# Plant Science

August 07-09, 2017 | Rome, Italy

## Influence of symptoms, growth, mineral uptake and ginsenoside contents of ginseng (*Panax ginseng* C. A. Meyer) to potassium concentrations in hydroponic culture

Jin Yu  
NIHHS, Korea

**Statement of the Problem:** *Ginseng* (*Panax ginseng* C. A. Meyer) is a perennial crop grown for about 4 to 6 years in the same place. Therefore, it is highly affected by soil, especially nutrients of soil. However, studies on nutritional physiology in ginseng have been unknown. Potassium (K) is one of the most important elements influencing metabolism, growth, development and yield of plant. The study was carried out to investigate to the influence of potassium concentrations on physiological disorder, growth and mineral concentration, ginsenoside of ginseng to obtain basic information for physiological disorder diagnose.

**Methodology & Theoretical Orientation:** The ginseng cultivar 'Gumpoong' was cultivated by hydroponic system for 3 months. The concentrations of basic nutrients were N 6, P 0.5, K 4, Ca 1, Mg 0.5 mM, Fe-EDTA 3, B 3, Mn 2, Zn 0.1 Cu 0.05, Mo 0.02 mgL<sup>-1</sup>. K concentrations in culture solution were controlled at 0, 4, 8, 12 mM. Symptoms of 2-year-old ginseng under K concentrations were checked weekly after nutrients treatment. After 90 days from transplantation of ginseng, growth, contents of mineral nutrients and ginsenoside were analyzed.

**Findings:** When K deficiency occurs, a small pale green spot appears on the first leaf and then chlorosis while the vein appears green. As symptoms progress, the light green spots turn dark brown and necrotic. Leaf edges also partially browse and necrotize. Conversely, when K excess occurs, chlorosis appears between veins, like symptoms that occur under magnesium deficiency. It is thought that the antagonistic action with other nutrients inhibited the absorption of nitrogen, magnesium and caused deficiency symptoms of other nutrients.

**Conclusion & Significance:** These results can be used as basic data for the diagnosis of physiological disorders by analyzing symptoms, growth, contents of mineral nutrients and ginsenoside of ginseng after changing the concentration of potassium in the nutrient solution.

### Biography

Jin Yu has completed her undergraduate and Master's degree at the Chungbuk National University (CBNU), Republic of Korea and then joined for Rural Development Administration (RDA) as a Researcher in 2013. She is also Doctoral student at CBNU. Her research has focused on the physiology and cultivation of ginseng which is one of the most popular medicinal plants in Republic of Korea. Her current research is the study of the nutritional physiology in ginseng.

yujin8603@korea.kr

Notes: