

**EFFECT OF DIFFERENT  
CONCENTRATIONS OF LIQUID NUTRIENT  
SOLUTION ON POTATO TUBER  
INITIATION OF TWO VARIETIES  
(GRANOLA AND GOLDEN STAR) UNDER  
HYDROPONIC SYSTEM**

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By

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## ABSTRACT

The potato (*Solanum tuberosum* L.) is a major world crop, placed in the fourth position among the most important food crops. Seed potato is the most expensive input in potato cultivation in Sri Lanka because of the unavailability of quality seeds at affordable price at the desired time for all varieties. Golden Star variety was introduced by the Department of Agriculture, Sri Lanka last year but longer time duration is required for seed production of that variety because of physiological and morphological characteristics such a tuber initiation, stolon length, number of stolon and number of minitubers. Therefore, seeds production at short period of time is important. For that new technology such as hydroponics method are used to produce high quality and high quantity of seeds at short period of time. This study was initiated to test different liquid nutrient levels in order to control plant growth and to reduce the time taken for tuber initiation under hydroponics system. This research was conducted at Agricultural Research Station (ARS), Department of agriculture (DOA), Sita-Eliya, Nuwara-Eliya, Sri Lanka during the period of June to August, 2011. Two different potato varieties, Granola and Golden Star were used in this study by applying six different concentrations of Albert's solution (from 2g /l to 1g/l) in hydroponic system to find out the time taken for tuber initiation, main stolon length per plant, number of minitubers per plant and number of main stolons per plant. These parameters were taken from 2<sup>nd</sup> week after transplanting until the 8<sup>th</sup> week. Treatments were arranged in Complete Randomized Design (CRD) with two replicates and six plants for each replicate. According to the results, Interaction (nutrient concentration\*varieties) affect was significant on mean main stolon length per plant and number of main stolons per plant and concentrations of Albert's solution were not significantly affect on time taken for tuber initiation, number of main stolon per plant and number of minitubers per plant. However, it was significantly affect on main stolon length per plant. There was a significant difference between varieties. The performance of Golden Star is not better than Granola at all treatments in above growth parameter. Albert's solution with 1 g/l concentration (T<sub>6</sub>) reduced the stolon length of both Granola and Golden Star variety in this hydroponic system. Therefore 1 g/l of Albert's solution can be recommended for grown Golden Star variety in hydroponic system.