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Utilization of Plant Growth Substances and Inorganic Nutrient for the Improvement of Microtuber Size of Potato (*Solanum tuberosum* L.) under In Vitro Condition

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Objectives

To investigate the effect of an extra addition of MS liquid medium containing inorganic nutrient and plant growth regulators on preexisting sub-cultures for the high yield with large size of microtubers.

Materials and methods

1. Plant materials: Virus-free *in vitro* plantlets of potato.

2. Methods: An addition of 1/2MS liquid medium containing 8% sucrose, BAP, B 9 and inorganic nutrient (hydroponic nutrients) to pre-existing sub-cultures and transferred to completely darkness, and then renewal of 50% liquid medium one time at two week after transferred.

Results and Discussion

An addition of 1/2MS liquid medium supplemented with 8% sucrose, IN-2 together with 10 mg/L BAP plus 200 mg/L B 9 in the preexisting sub-cultures at one week before transferred to darkness produced the highest number and yield of microtubers. Furthermore, 50% of liquid medium renewal at two weeks after transferred to dark increased by 84.5% yield of microtuber compared to control and the highest (average size =700 mg/microtuber) of microtuber with 75% were more than 500 mg/microtuber in size. Thus, an addition of plant growth substances and inorganic nutrient is an appropriate cultural conditions helps for the further production of large size of microtuber those microtubers could substantially increase yield in the direct planting under glasshouse or field condition.

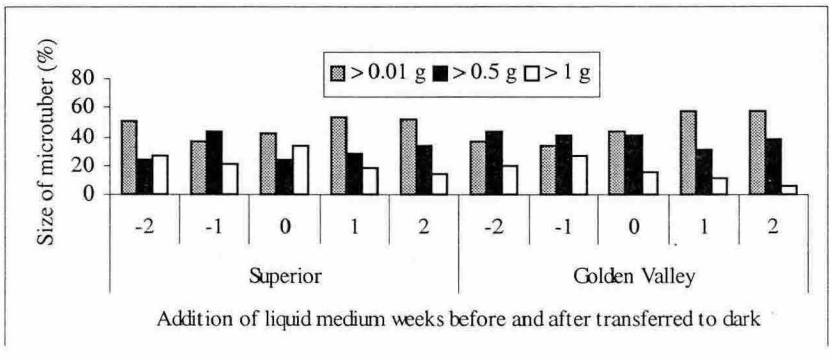

Figure 1. Effect of an addition periods of MS liquid medium containing inorganic nutrient and BAP plus B 9 on the size of microtubers of potato vars. 'Superior', 'Golden Valley'.

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