

Definition of Optimal *In Vitro* Conditions for Different Maturity Potato Cultivars

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The research aim was to determine optimal *in vitro* condition for propagation different maturity potato cultivars. Potato varieties were collected from *in vitro* potato collection of Georgian Technical University, Biotechnology Center according to their maturity: Early cultivars: Viviana, Red Sonia, Bellarosa, Vineta, Anushka; Medium early: Donata, Bernina, Madeira, Sante, Laura. Medium late: Brodie, Shepody, Jelly, Carola, Desiree.

The influence of three types of combinations with temperature, humidity, light and photoperiod was studied on all three maturity potato cultivar's *in vitro* development: I. T-23-25° C, H-80%, Lux-5-5500, 16h; II. T-25-27° C, H-75%, Lux-5-5500, 16h; III. T-27-29° C, H-70%, Lux-5-5500, 16h; The results were evaluated after 17 days of reproduction. Best *in vitro* condition for all researched potato varieties was selected for their leave colors, rooting, and shoot formation. All potato cultivars morphological characterization was variable depending on the type of *in vitro* condition. It was revealed early maturity cultivars had maximum potential for *in vitro* propagation (5-6 nodes, average rooting 92% and shoot formation 94%) on combination: T-23-25° C, H-80%, Lux-5-5500, 16h. Combination: T-25-27° C, H-75%, Lux-5-5500, 16h was best for medium early cultivars (5-6 nods, rooting 89% and shoot formation 90%). The perfect *in vitro* reproduction of medium late varieties (5-6 nodes, average rooting 87% and shoot formation 82%) was observed on the combination: T-27-29° C, H-70%, Lux-5-5500, 16h.

As it is known, for *in vitro* developments of early medium and late medium potato cultivars are necessary 22-26 days, but our results were obtained in 17 days. Finally, optimal *in vitro* condition for propagation different maturity potato cultivars was defined.

Biography:

Maia Kukhaleishvili has completed his PhD at the age of 58 years from ST. Andrew the First Called Georgian University of the Patriarchate of Georgia. She is the director of Georgian Technical University, Biotechnology Center- Scientific-Research Center. She has published more than 10 papers in reputed journals and has a great experience in the field of Agriculture and Biotechnology.