Nach der Analyse zahlreicher wissenschaftlicher Arbeiten über die Besonderheiten der Düngung von Sonnenblumen unter verschiedenen Boden- und Klimabedingungen kamen wir zu dem Schluss, dass die Pflanzendüngung der wichtigste Teil des Pflanzenstoffwechsels ist, da sie die Richtung der biochemischen Umwandlungen, des Wachstums, der Entwicklung, der Pflanzenproduktivität und der Erntequalität bestimmt. Der Ernährungszustand der Pflanzen hängt eng mit der Verfügbarkeit mobiler Nährstoffformen im Boden und ihrer Eignung für die Pflanzen zusammen. Die Menge der Nährstoffe, die den Pflanzen zugeführt werden, hängt von der chemischen Zusammensetzung der Pflanzen und dem Umfang der Ernte ab. Je höher der Ertrag einer Kultur ist, desto mehr Nährstoffe werden benötigt. Weitere Forschungsmöglichkeiten sehen wir in der Untersuchung der Auswirkungen der Reihendüngung von Sonnenblumen in der nördlichen Steppe der Ukraine.

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OPTIMIZATION OF MICROCLONING *IN VITRO* OF CAMELINA PLANTS

Camelina sativa is a promising agricultural crop which has food, technical and energy significance. A short period of vegetation, resistance to diseases and pests and unpretentiousness to the cultivation conditions determine the high economic efficiency of its production. The limiting factor of expanding areas for this crop is lack of high-yielding varieties [1, 2].

Recently, biotechnological methods, in particular microclonal propagation, are used in selection and genetic studies and seed production. Using the culture *in vitro* provides control over parameters of biomaterial growing, allows manipulating with the objects at the cellular and molecular levels, receive new forms of plants with desired characteristics quickly. It is difficult to achieve it when working with intact plants [3].

The effectiveness depends on a number of factors, the main of which are the composition of the genotype, type of explant, nutrient medium, concentration and ratio of growth regulators, conditions for sterilization of biomaterial and other [4].

The purpose of our research was to study the conditions of sterilization of explants and the selection of modification of nutrient media for microclonal propagation of camelina plants.

Such chemical compounds for the main sterilization as ethanol, sodium hypochlorite, hydrogen peroxide, potassium permanganate were used. Sterilization was done by various exposure and concentration of sterilizing agents.

The lowest efficiency of explants sterilization was observed by using of 70 % ethyl alcohol. In the research variant, outlet of sterile biomaterials while seeds using was 59,6–60,3 % and seedlings using – 10,4–10,6 %.

Sodium hypochlorite at high concentrations caused a high percentage of explants necrosis. This index for seeds by treatment duration of 10 minutes was 17,6 % and at exposure of 20 minutes increased to 22,3 %. Low concentrations of sodium hypochlorite provided a high index of destruction of unwanted microflora. Exposure of 20 minutes by seeds treatment was optimum – efficiency of sterilization was 90,6 %. Sterilization of seedlings held the fullest by duration of 10 minutes – outlet of sterile viable explants was 64,3 %.

Duration of seeds treatment by hydrogen peroxide did not affect the efficiency of sterilization; outlet of sterile viable explants was 69,3–73,0 % in average. Efficiency of sterilization for seedlings at a ten-minute treatment was at the level of 59,0 %.

Use of potassium permanganate proved to be optimal in concentration of 1,0 %. Efficiency of sterilization by seeds treatment under different exposures did not vary significantly and was