UDC: 633.81:631.523:582.929.4 DOI: https://doi.org/10.53040/ppap2026.76

INBRED LINES OF CLARY SAGE (*Salvia sclarea* L.) WITH HIGH ESSENTIAL OIL CONTENT

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Scientific research on clary sage (*Salvia sclarea* L.) is focused on diversifying the initial breeding material adapted to climate change. Breeding work to contribute to the cultivation and expansion of cultivated areas with clary sage genotypes. In this context, the creation, evaluation of inbred lines and the identification of genotypes with valuable breeding indices, which would ensure increased productivity of the raw material, as well as of the essential oil, represent a primary task.

The biological material used in the present study was represented by 39 inbred lines S_7 – S_{17} of different origins. Diversification of the initial breeding material in clary sage. in recent years continued by the inbreeding method. The plants selected as parents of future lines were forcibly self-pollinated by closing the inflorescence in an insulator, at the beginning of the flowering phase, forcing pollination with its own pollen. The essential oil content was determined in the full flowering phase, by hydro distillation of fresh inflorescences in the *Ginsberg* apparatus

As a result of successive selections, eight inbred lines were selected that were not subject to inbreeding depression and had a very high essential oil content (1,402–1,860% (dry matter), including: three descendant lines of the Ambra Plus (AP S_7) variety, one line derived from the Nataly Clary (NC) variety in the seventh generation (S_7), and 4 from generations S_{12}–S_{17}.

An assessment of the quality of the essential oil obtained by hydro distillation from the inbred lines demonstrated that the concentration of linalyl acetate is high, as European standards specify a linalyl acetate concentration of 50–80%, and in the tested lines it ranges from 50.88% in line AP 2-11 S_7 to 63.86% in line M-69 403-82 S_{17}. The essential oil content in the inflorescences is very high in the inbred lines AP 30-11 S_7 –1.561%, AP 35-11 S_7 –1.402%, and M-69 403-82 S_{17} –1.735% (dry matter), and gas chromatographic analysis demonstrated that the quality of the es-

sential oil is high due to the high concentration of linalyl acetate, which accounted for 60.7%, 62.93%, and 63.86%, respectively, in these lines. The concentration of linalool ranged from 16.54% in the inbred line M-69 257-82 S_{17} to 21.83% in the AP 30-11 S_7 line, a fact that ensures the excellent quality of this product. The sclareol content in the essential oil ranges from 7.32% (line M-69 403-82 S_{17}) to 21.04% (AP 2-11 S_7).

In conclusion, 39 inbred lines (S_7–S_{17}) of clary sage were evaluated; the quality of the essential oil was determined for 5 lines, which constitute an important material for plant breeding and represent a valuable source of germplasm. The highest concentration of linalyl acetate in the essential oil was found in two lines AP 35-11 S_7 – 62.93% and M-69 403-82 S_{17}, which had an exceptional essential oil content of 1.735% (dry matter), with a linalyl acetate concentration of 63.86%. Testing inbreeds lines in the 1st and 2nd year of vegetation confirmed the very high resistance to drought.

Keywords: *Salvia sclarea* L., clary sage, essential oil, inbreeding lines.

Acknowledgments. The research was conducted within the framework of Subprogram 011102 “Enhancement and conservation of genetic diversity, and breeding agricultural crop gene pools in the context of climate change”, funded by the Ministry of Education and Research of the Republic of Moldova.