

DEVELOPMENT OF AN EFFECTIVE METHOD OF SOMATIC EMBRYOGENESIS FOR OBTAINING BIOLOGICALLY ACTIVE SUBSTANCES FROM AN ENDANGERED MEDICINAL PLANT (*F. SUMBUL* (KAUFFM.) HOOK. F.)

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In vitro microclonal reproduction protocols have been developed for some high-value medicinal ferule species, for example, *F. ferulaeoides* (Steud.) Korov., *F. assa-foetida* L., *F. gummosa* Boiss., *F. jaeschkeana* Vatke, *F. orientalis* L. and *Ferula sinkiangensis* K. M. Shen. To date, there are no reports of reproduction of *F. sumbul* *in vitro*. These species are vulnerable or threatened with extinction due to low seed germination, the duration of the dormant period of seeds, poor regeneration in nature, over-exploitation by humans, as well as the lack of organized cultivation, limited geographical range, etc. These factors lead to the threat of extinction of the listed species.

The Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan is conducting research on the development of a protocol for microclonal reproduction of two valuable medical species of the genus *Ferula* L. (Apiaceae Lindl.): *F. tadshikorum* Pimenov and *F. sumbul* (Kauffm.) Hook. f. within the framework of the A-FA-2021-146 project «Creation of technology for the organization and reproduction of medicinal plants by *in vitro* method» with a implementation period of 2021-2024. Within the framework of the project, a

dissertation work is being prepared.

F. sumbul - perennial, herbaceous. polycarpic. They could not germinate seeds in the laboratory. Therefore, mature seed germs were used as an explant. In all trea xplants (80-90%). only the consistency and color of the calluses differed. In order to proliferate somatic embryos, the embryogenic callus was passioned onto an MS nutrient medium that did not contain phytohormones. Some embryos were transferred to a nutrient medium of MS with IBA and BAP in low concentrations, as well as to nutrient media containing only phytohormone 2,4 D. In order to form regenerating plants by indirect somatic embryogenesis, the sixth and seventh passaging of somatic embryos was carried out on a hormone-free nutrient medium. It was at the stage 6-7 of passage that the maturation of somatic embryos and the development of regenerating plants in 42.1% of embryos were observed.

The formation of regenerating plants for species of the genus *ferula* was observed on the 5th month after introduction into culture *in vitro*, while for nutmeg *ferula*, the formation of regenerating plants was noted on the 7th month after introduction into culture *in vitro*.