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In vitro propagation of some *Laelia* Lindl. and *Cattleya* Lindl. species

Nowadays many wild species of American orchids are under threat of extinction from over-collection and habitat destruction. N.N. Gryshko National Botanical Gardens orchid collection includes *Cattleya* and *Laelia* species*. Some of them are rare in the wild. To protect these species from extinction the methods of propagation to preserve a number of individuals under artificial conditions should be developed. Thus the objective of this study was to elaborate a methods for mass rapid seed and clonal propagation *in vitro* of 5 *Cattleya* species (*C. aelandiae* Lindl., *C. bowringiana* Veitch., *C. granulosa* Lindl., *C. intermedia* Graham. ex Hooker., *C. percivaliana* O'Brien.), and seven *Laelia* species (*L. anceps* Lindl., *L. lobata* (Lindl.) Veitch., *L. lundii* Rehb. f. et Warm., *L. mantiqueirae* Pabst., *L. purpurata* Lindl., *L. rubescens* Lindl., *L. sincorana* Schltr.)**. Immature capsules about half-way of maturation were used for sowing on modified Knudson medium with addition of 2 mg/l adenine. Seed germination began after 1 month of culture. Developing embryo exceeded initial size of embryo in 2 or 4 times, forming protocorms which shape is species-specific. For proliferation of protocorms the Murashige and Skoog (MS) medium supplemented by the addition of 5 mg/l BAP and 2 mg/l NAA was used. Seedling and plantlets also may be use as a secondary explants to enlarge the coefficient of propagation. Effective method of *Cattleya* and *Laelia* plants micropropagation is induction of protocorm formations on leaves of plantlets and seedlings. Leaves were carefully separated from stem and cultivated on MS with 2 mg/l BAP, 0.3 mg/l NAA, 15% coconut milk. After one month at the base of leaves, at first from epidermal tissues forms numerous of protocorms, followed by shoots formation. Our research was carried out to examine the suitability of the basal and lateral buds of young shoots as explants for mass rapid clonal propagation of species studied. The size of these explants did not exceed 0,5-1,0 cm. It was established that basal buds of shoot have the highest morphogenetic potential. After 6 months of cultivation the formation about 70 protocorms were observed on the buds of basal part of the shoot, while the buds in the middle of the shoot formed only 10 to 15 ones. The apical meristems of all studied species and cultivars were inactive, therefore under *in vitro* culture conditions they did not develop.

*NBG's collection of tropical orchids was registered in Administrative organ CITES in Ukraine (notification № 6939/19/1-10 from 23.06.2004).

** The name of species are give according to C. Withner 1990, 1991