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DNA BARCODING OF WILD *GANODERMA* SPECIMENS AND CULTIVATED STRAINS IN HUNGARY

Magyarországi *Ganoderma* minták és termesztésben használt izolátumok vizsgálata DNS-vonalkód segítségével

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The cosmopolitan polypore genus *Ganoderma* (Polyporales, Basidiomycota) has an enormous economic value, due to the caused diseases on different tree plantations (e.g. *G. boninense* in oil palms) and the medicinal properties of certain species (e.g. *G. applanatum*, *G. lingzhi* and *G. sinense*). The cultivated *Ganoderma* strains used by Hungarian growers originate both from selected wild strains or more often taxonomically not evaluated isolates with uncertain origin. However, based on morphological characteristics, the species concepts in the genus lack consensus, and the taxonomy of many *Ganoderma* taxa is thus problematic. Therefore, in addition to the morphological examination, suitable molecular methods have recently been required to the taxonomically correct identification of the wild *Ganoderma* species and cultivated strains in many cases. DNA barcode is a widely accepted tool for species identification and authentication of commercial products containing *Ganoderma* species. Among the tested fungal DNA barcoding markers, the application of the internal transcribed spacer (ITS) is the most commonly used and it was formally proposed as the primary fungal barcode marker. Besides the ITS, several other DNA barcoding markers were used by different authors to clarify taxonomic difficulties in *Ganoderma*: e.g. β -tubulin, LSU, *rpb1*, *rpb2*, *Tef1- α* or the mtSSU rDNA sequence. Formerly, the Hungarian *Ganoderma* species (viz. *G. adspersum*, *G. applanatum*, *G. carnosum*, *G. cupreolacatum*, *G. lucidum* and *G. resinaceum*) were briefly studied by Papp and Szabó (2013, in *Acta Silv. Lign. Hung.* 9: 71–83.), however, based on solely morphological characteristics. In this study we aimed (i) to generate DNA barcoding sequences for all wild *Ganoderma* species observed in Hungary; furthermore, (ii) to investigate and evaluate the Hungarian cultivated strains labelled as “*G. lucidum*” and the *Ganoderma* spp. isolates preserved in culture collections, based on DNA barcoding sequence analysis. Supported by the ÚNKP-17-4 New National Excellence Program of the Ministry of Human Capacities.