Macrolepiota in Korea: New records and new species

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Purpose: The genus Macrolepiota (Agaricales, Basidiomycota) is easy to recognize at the genus level because of big, fleshy basidiocarps with squamules covering the pileus; a single or double annulus; and big, thick-walled basidiospores with a germ pore. However, morphological identification is often unreliable in Macrolepiota due to similar morphological features among species. Due to the uncertainty of previous morphological identification in the genus Macrolepiota, it is necessary to re-examine Korean Macrolepiota using molecular data.

Methods: We re-examined 34 Macrolepiota specimens collected from 2012 to 2018 in Korea using a reverse taxonomic approach, whereby species identification was first done based on the internal transcribed spacer (ITS) region analysis, followed by morphological confirmation.

Results: We identified the presence of four species: M. detersa, M. mastoidea, M. procera, and M. umbonata sp. nov. Two species (M. detersa and M. mastoidea) were previously unrecorded from Korea and M. umbonata is a new species. Detailed descriptions of all four species and taxonomic key are provided in this study. Macrolepiota procera and M. umbonata are distributed through the country, but M. detersa and M. mastoidea are distributed only in limited areas.

Conclusion: According to our results, the combination of ITS locus and morphology proved to be a robust approach to evaluate the taxonomic status of Macrolepiota species in Korean. Additional surveys are needed to verify the species diversity and clarify their geographic distribution.