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## *Trichoderma* (*Hypocrea*) species with green ascospores from China

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Abstract



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Suggestions

Stromata of *Trichoderma* species having green ascospores were collected in various regions of China. Based on morphology of the sexual and asexual morph, culture characteristics, and sequence analyses of *rpb2* and *tef1* genes, 17 species with green ascospores were identified. Among them, *Trichoderma rosulatum*, *T. rufobrunneum* and *T. stipitatum* are described as new species, and seven other species are reported for the first time from China. *Trichoderma rosulatum* produces small bright yellow or pale greenish stromata with dense dark green ostioles and gliocladium-like conidiophores, shows a close relationship to *T. thelephoricola*, and belongs to the Chlorospora clade. *Trichoderma rufobrunneum*, which typically forms reddish brown stromata, is recognised as a member of the Harzianum clade. *Trichoderma stipitatum* is characterised by turbinate, pale yellow to nearly orange stromata and verticillium-like conidiophores; it forms a distinct, independent lineage with strong bootstrap support in the phylogenetic trees. The distinctions between the new species and their close relatives are discussed, and their phylogenetic positions are explored.

**Keywords:** ASCOMYCOTA; HYPOCREALES; ITS; MORPHOLOGY; RPB2; SEQUENCE ANALYSIS; SYSTEMATICS; TEF1

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