

New genotypes of *Trichophyton quinckeanum* isolated from cases of human and animal dermatophytosis from Iran

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Background: The formerly *Trichophyton mentagrophytes* var. *quinckeanum* is a zoophilic dermatophytes that in the newest taxonomy of dermatophytes has taken species status, referred to as *T. quinckeanum*. We report the first proven cases of human and animal infections with the species from Iran.

Case presentation: the crusts and hairs from a 2-year old female Rüppell's sand fox (*Vulpes rueppellii*) with some alopecic patches on legs and abdomen (fig. 1a) and also the scales from neck of a 4-year-old boy suspected to dermatophytosis were subjected to direct microscopy with KOH 10% and culture on mycobiotic agar. Direct examination were positive for hyaline septate hyphae and arthroconidia suggestive of dermatophytosis. The colonies had relatively slow growth and showed a white color, dome-shaped, cottony in texture and diffused in the margins (fig. 1b). Microscopic examination of culture showed a lot of small, sessile and tear-shaped microconidia and thin wall, cigarette-shape, long and 3-8 cells macroconidia (fig. 1c).



Fig 1. a: alopecic patches on the legs of Rüppell's sand fox, **b:** (Micro) and **c:** (Micro-morphology) of the fox *T. quinckeanum* isolate, grown on Mycobiotic agar after 2 weeks.

Microscopic examination of culture showed a lot of small, sessile and tear-shaped microconidia and thin wall, cigarette-shape, long and 3-8 cells macroconidia (fig. 1c). According to the phenotypic features, the isolate was identified as *Trichophyton sp.* Amplification of the ITS rDNA, subsequent digestion with *MvaI* enzyme and electrophoresis on 2% agarose gel led to restriction pattern known for *T. interdigitale* and *T. simii*. However, in PCR-sequencing of the ITS-rDNA both strains showed the most similarity (99-99.3%) to the sequence JQ407219 for *T. quinckeanum* strain IHEM13697 which recently has designated as the neotype for the species. Surprisingly, in the ITS phylogenetic dendrogram, two isolates were clearly set apart from the reference strains of *T. quinckeanum* (fig. 2). The strains showed potential of new species and should be subjected on more mycological and molecular assessments.

Reference:

1- Uhrlaß S, Schroedl W, Mehlhorn C, Krüger C, Hubka V, Maier T, Gräser Y, Paasch U, Nenoff P. Molecular epidemiology of *Trichophyton quinckeanum*—a zoophilic dermatophyte on the rise. JDDG: Journal der Deutschen Dermatologischen Gesellschaft. 2018;16(1):21-32.

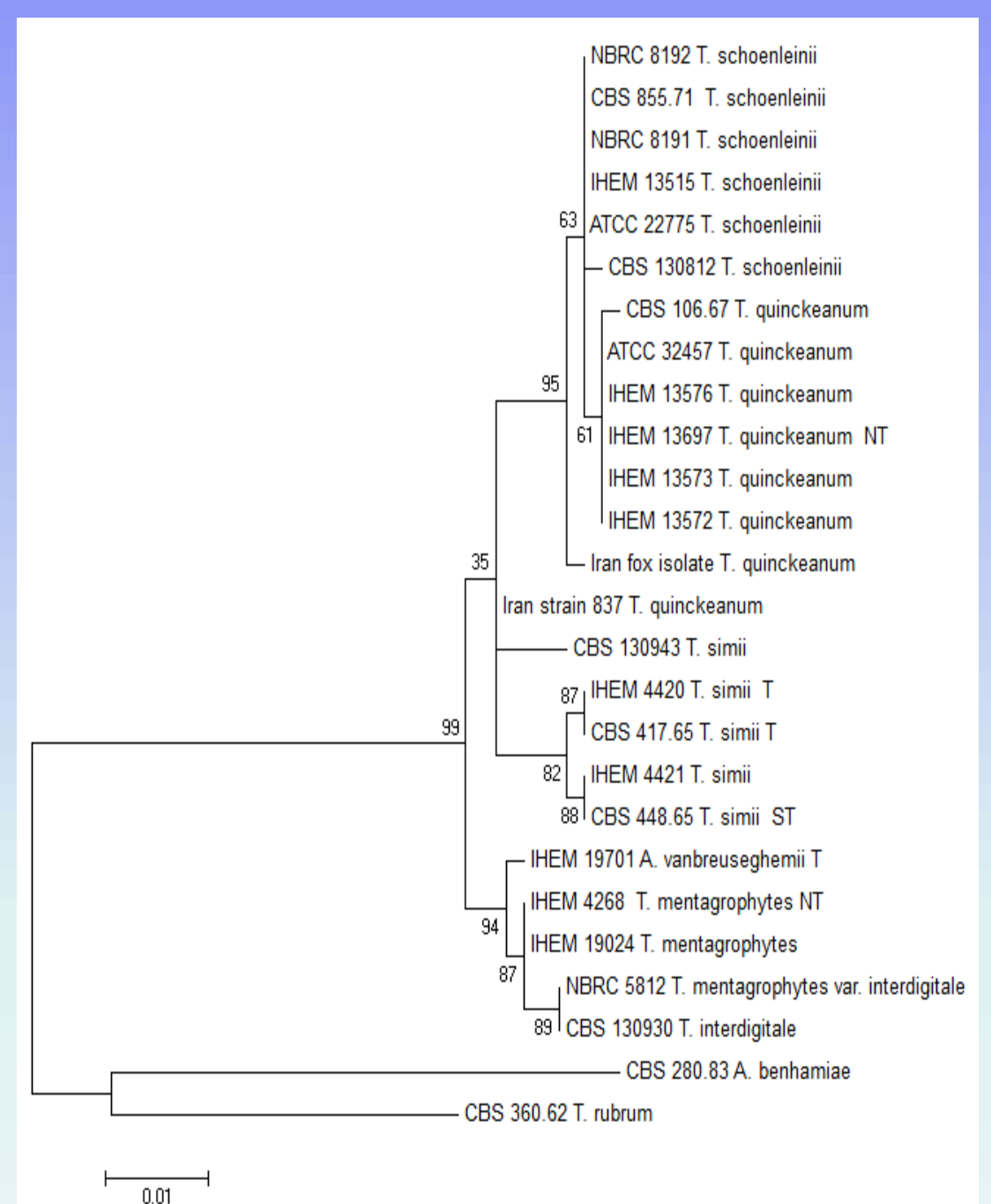


Fig 2. Dendrogram based on sequencing data of the ITS-rDNA region of *T. quinckeanum*, *T. schoenleinii*, *T. simii*, *T. mentagrophytes* and *T. interdigitale* strains. Statistical method: Maximum likelihood, 1,000 Bootstrap replicates.