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LETTER TO THE EDITOR

Reclassification of dermatophytes and its clinical relevance

Reclassificação de dermatófitos e a sua relevância clínica

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To the Editor:

Dermatophytes are keratinophilic fungi in the family *Arthrodermataceae* that infect keratinized tissues, such as skin, hair, or nails, causing dermatophytosis (tinea). They are among the most frequent infectious agents encountered in dermatology[1]. Conventionally, dermatophytes were grouped into three genera - *Tricophyton*, *Microsporum*, and *Epidermophyton* – based on morphological features[2]. However, significant taxonomic revisions in recent years have expanded and reorganized this classification[3]. In consequence, lack of awareness of these updates may contribute to diagnostic ambiguity and potentially to therapeutic delay. The purpose of this letter is to highlight the updated phylogenetic classification of dermatophytes and to outline its relevance in current clinical practice.

It is increasingly recognized that morphological traits alone do not reliably reflect evolutionary relationships[4]. This principle has also become evident in dermatophytes. Multilocus sequencing has led to the establishment of a revised taxonomy that includes additional genera: *Arthroderma*, *Lophophyton*, *Nannizzia*, *Guarromyces*, *Paraphyton,* and *Ctenomyces*[3,5].

Classification of dermatophytes according to ecological niche remains scientifically relevant. Anthropophilic species are typically associated with chronic and minimally inflammatory infections, while zoophilic and geophilic dermatophytes more often produce acute and inflammatory clinical manifestations. Therefore, accurate species identification is not only epidemiologically informative, but also relevant for therapeutic decision-making in selected clinical contexts, particularly in inflammatory disease, zoonotic infections, or treatment-refractory cases (Table 1)[3,5-7].

Despite these changes, *Tricophyton* species remain the most common cause of human dermatophytosis. Within this revised taxonomy, *Trichophyton indotineae*, formerly belonging to the *Trichophyton mentagrophytes*/*Trichophyton interdigitale* complex has emerged as a distinct lineage associated with widespread and recurrent tinea that is now increasing globally. This species has been associated with treatment failure, particularly in regions where terbinafine resistance has been documented[8]. Furthermore, itraconazole resistance and heteroresistance have also been documented, emphasizing the relevance of species-level diagnosis and antifungal stewardship[9].

It is imperative that dermatologists remain updated in dermatophyte taxonomy, particularly in the context of globalization, which has contributed to an increasing number of dermatophytosis cases with distinct clinical behavior depending on the species involved[6]. This

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Table 1. Clinically relevant dermatophyte genera according to ecological niche and commonly encountered species

Genus	Ecological niche	Examples
Tricophyton	Anthropophilic (+++), Zoophilic	*Trichophyton rubrum, Trichophyton mentagrophytes, Trichophyton interdigitale, Trichophyton tonsurans*
Epidermophyton	Anthropophilic	*E. floccosum*
Microsporum	Zoophilic (+++), Anthropophilic	*Microsporum canis, Microsporum audouinii*
Nannizzia	Geophilic	*Nannizzia gypsea, Nannizzia incurvata*
Arthroderma	Geophilic (+++)	*Arthroderma benhamiae, Arthroderma vanbreuseghemii*
Lophophyton	Zoophilic	*Lophophyton gallinae*
Guarromyces	Not fully established*	*Guarromyces ceretanicus*
Paraphyton	Not fully established*	*Paraphyton cookie*
Ctenomyces	Geophilic	*Ctenomyces serratus*

*Ecological classification reflects predominant associations described to date. For *Guarromyces* and *Paraphyton*, ecological data remain incompletely characterized.

revised taxonomy provides more accurate species identification and strengthens public health surveillance strategies. Despite the absence of clearly defined clinical antifungal breakpoints for dermatophytes, species-level identification may still support rational antifungal treatment selection in selected clinical contexts.

We therefore encourage the routine adoption of the updated classification into laboratory reporting and clinical education.

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Conflicts of interest

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Ethical considerations

Protection of human subjects and animals. The authors declare that no experiments on humans or animals were performed for this research.

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References

1. Jartarkar SR, Patil A, Goldust Y, Cockerell CJ, Schwartz RA, Grabbe S, et al. Pathogenesis, immunology and management of dermatophytosis. J Fungi (Basel). 2021;8:39.
2. Emmons CW. Dermatophytes. Natural grouping based on the form of the spores and accessory organs. Arch Dermatol Syphilol 1934;30:337-62.
3. De Hoog GS, Dukik K, Monod M, Packeu A, Stubbe D, Hendrickx M, et al. Toward a novel multilocus phylogenetic taxonomy for the dermatophytes. Mycopathologia. 2017;182:5-31.
4. Schleifer KH. Classification of bacteria and archaea: past, present and future. Syst Appl Microbiol. 2009;32:533-42.
5. Baert F, Stubbe D, D'Hooge E, Packeu A, Hendrickx M. Updating the taxonomy of dermatophytes of the BCCM/IHEM collection according to the new standard: a phylogenetic approach. Mycopathologia. 2020;185:161-8.
6. Barac A, Stjepanovic M, Krajisnik S, Stevanovic G, Paglietti B, Milosevic B. Dermatophytes: update on clinical epidemiology and treatment. Mycopathologia. 2024;189:101.
7. Nenoff P, Krüger C, Ginter-Hanselmayer G, Tietz HJ. Mycology - an update. Part 1: dermatomycoses: causative agents, epidemiology and pathogenesis. J Dtsch Dermatol Ges. 2014;12:188-209; quiz 210, 188-211; quiz 212.
8. Jabet A, Normand AC, Brun S, Dannaoui E, Bachmeyer C, Piarroux R, et al. *Trichophyton indotineae*, from epidemiology to therapeutic. J Mycol Med. 2023;33:101383.
9. Gupta AK, Mann A, Polla Ravi S, Wang T. An update on antifungal resistance in dermatophytosis. Expert Opin Pharmacother. 2024;25:511-9.