

ORIGINAL ARTICLE

Molecular Detection of Dermatophytes and Nondermatophytes in Onychomycosis in Antalya, Turkey

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SUMMARY

Background: Onychomycosis is a chronic nail infection, and dermatophytes, yeasts, and nondermatophytic molds may be the causative agents. This study aimed to determine the etiological agents of onychomycosis by using conventional and molecular methods.

Methods: Between June 2020 and July 2021, 37 patients with a presumptive diagnosis of onychomycosis and mycological evidence (culture and/or EUROArray Dermatormycosis assay) were included in the study. Organisms detected in cultured nail specimens were identified by combined phenotypic characteristics and by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS). An EUROarray Dermatormycosis assay was used for molecular detection of fungal pathogens.

Results: The EUROArray Dermatormycosis assay was positive for a single fungal target in 23 samples, and 14 samples were positive by culture. The most common pathogen was *Trichophyton rubrum* in both methods. Coinfection was detected in 14 samples by using molecular methods, and *Trichophyton rubrum* and *Fusarium solani* (9 samples) were the most common pathogens detected together. *Trichophyton* spp., nondermatophyte molds, and *Candida* spp. were detected in 33 (89.2%), 16 (43.2%), and 6 (16.2%) samples, respectively, when the two methods were evaluated together.

Conclusions: Our results revealed that fungal culture allows the diagnosis of onychomycosis, but it is not as sensitive as the EUROArray Dermatormycosis test, especially in patients receiving antifungal therapy.

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Supplementary Data

Supplementary File 1. EUROArray Dermatomycosis panel menu.

<i>Trichophyton tonsurans</i>	<i>Epidermophyton floccosum</i>
<i>Trichophyton equinum</i>	
<i>Trichophyton interdigitale/mentagrophytes</i>	<i>Microsporum canis/audouinii</i>
<i>Trichophyton interdigitale</i>	<i>Microsporum canis</i>
<i>Trichophyton mentagrophytes</i>	<i>Microsporum audouinii</i>
<i>Trichophyton quinckeanum/schoenleinii/simii</i>	<i>Microsporum ferrugineum</i>
<i>Trichophyton quinckeanum</i>	
<i>Trichophyton schoenleinii</i>	<i>Nannizzia fulva</i>
<i>Trichophyton simii</i>	<i>Nannizzia gypsea</i>
<i>Trichophyton concentricum/erinacei</i>	<i>Nannizzia incurvata</i>
<i>Trichophyton bulbosum/benhamiae (afr.)</i>	<i>Nannizzia persicolor</i>
<i>Trichophyton bulbosum</i>	
<i>Trichophyton benhamiae (white/afr)</i>	Yeasts/molds
<i>Trichophyton benhamiae (white)</i>	<i>Candida albicans</i>
<i>Trichophyton benhamiae (afr.)</i>	<i>Candida parapsilosis</i>
<i>Trichophyton benhamiae (yellow)</i>	<i>Candida guilliermondii</i>
<i>Trichophyton erinacei</i>	<i>Fusarium solani</i>
<i>Trichophyton verrucosum/eriotrephon</i>	<i>Fusarium oxysporum</i>
<i>Trichophyton rubrum</i>	<i>Scopulariopsis brevicaulis</i>
<i>Trichophyton violaceum</i>	