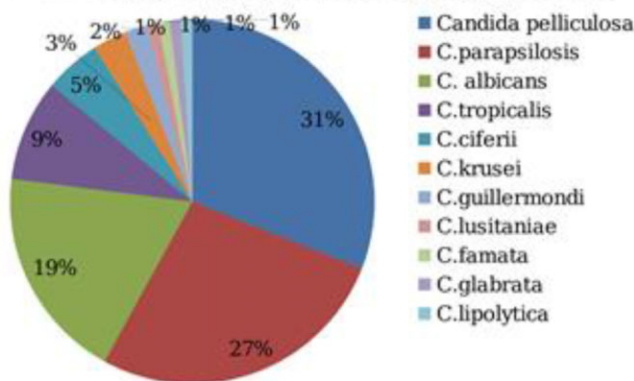


**Figure 2. Species distribution of candida isolates**



**Table 1. Antifungal susceptibility of Candida species using VITEK 2 SYSTEM**

Candida species (No.)	Fluconazole No (%)	Caspofungin No (%)	Micafungin No (%)	AmphotericinB No (%)	Flucytosine No (%)	Voriconazole No (%)
<i>C. pelliculosa</i> (27)	25 (93)	27 (100)	27 (100)	27 (100)	27 (100)	27 (100)
<i>C. parapsilosis</i> (22)	16 (73)	22 (100)	22 (100)	22 (100)	22 (100)	21 (95)
<i>C. albicans</i> (16)	16 (100)	16 (100)	16 (100)	16 (100)	16 (100)	16 (100)
<i>C. tropicalis</i> (08)	08 (100)	08 (100)	08 (100)	08 (100)	08 (100)	08 (100)
<i>C. ciferii</i> (04)	04 (100)	04 (100)	04 (100)	04 (100)	04 (100)	04 (100)
<i>C. krusei</i> (03)	0 (0)	01 (33)	03 (100)	03 (100)	0 (0)	03 (100)
<i>C. guilliermondii</i> (02)	01 (50)	02 (100)	02 (100)	02 (100)	01 (50)	01 (50)
<i>C. lusitanae</i> (01)	01 (100)	01 (100)	01 (100)	01 (100)	01 (100)	01 (100)
<i>C. famata</i> (01)	01 (100)	01 (100)	01 (100)	01 (100)	01 (100)	01 (100)
<i>C. glabrata</i> (01)	01 (100)	0 (0)	01 (100)	01 (100)	01 (100)	01 (100)
<i>C. lipolytica</i> (01)	0 (0)	01 (100)	01 (100)	01 (100)	01 (100)	01 (100)
<b>TOTAL 86</b>	<b>73 (85)</b>	<b>83 (97)</b>	<b>86 (100)</b>	<b>86 (100)</b>	<b>82 (95)</b>	<b>84 (98)</b>

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**Causative agents of Onychomycosis and associated factors: A 15 year study**

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Poster session 1, September 21, 2022, 12:30 PM - 1:30 PM

**Objectives:** Onychomycosis is a term used to describe nail infections that can cause discoloration, thickening, and separation from the nail bed. These manifestations can cause pain and discomfort and medical intervention may be required. The treatment of this disease is difficult and a time-taking process.

The aim of this study was to determine the frequency and distribution of fungal agents according to age and gender in patients with onychomycosis who applied to our laboratory over a period of 15 years.

**Methods:** A total of 1337 nail samples, which were sent to the Mycology Laboratory of Istanbul Medical Faculty Hospital, Department of Medical Microbiology between January 2007 and July 2022, were examined with conventional methods.

Calcofluor white and 15% KOH were used for microscopic examination and Sabouraud dextrose agar containing antibiotics with and without cycloheximide was used for culture. Fungi were identified by using conventional methods and/or API, VITEK, or MALDI-TOF MS.

**Results:** The distribution of 1337 nail samples according to patients' body region, gender, and age is shown in Table 1. Of the total samples, 945 and 392 were toenails and fingernails respectively. Of the specimens, 1212 (90.6%) were taken from adults and 125 (9.4%) were taken from pediatric patients.

Fungal growth was detected in 139 (11.9%) specimens and one culture showed mixed growth. Yeasts were found to be the most frequent isolated fungi (60.7%) and dermatophytes were at the second place (25.71%). Among yeasts, non-*albicans Candida* species (76.4%) were found to be more frequent than *Candida albicans* (17.6%), *Trichophyton* species were found to be the most frequent dermatophytes (75%). *Candida parapsilosis* was the most prevalent among identified non-*albicans Candida* (21.2%). The distribution of fungal agents according to patients' body region and age is shown in Table 2.

Among the patients with a positive culture, the most frequent underlying comorbidities were diabetes in 16 patients (11.5%) and HIV infection in 4 patients (2.87%). No significant difference was found when culture positivity rates were compared according to age and gender. However, there was a significantly higher rate of culture positivity in fingernails compared to toenails ( $P < .05$ ).

**CONCLUSION:** Onychomycosis agents differ according to regions. In our analyses, we found non-*albicans Candida* species, especially *C. parapsilosis* as the most frequent agents of onychomycosis. Because these species are mostly resistant to antifungals this must be kept in mind during therapy.

As comorbidities were only found in a limited number of patients additional studies are needed to find responsible factors.

Table 1. The distribution of nail samples according to patients' body region, gender and age.

Gender / Age	Toenails	Fingernails	Total samples (positive cultures-%)
	Samples (positive cultures-%)	Samples (positive cultures-%)	
Male $\geq 18$	295 (36* - 12,2%)	128 (13-10,1%)	423 (49 - 11,58%)
Male < 18	29 (6-20,7%)	20 (1-5%)	49 (7 - 14,28%)
Female $\geq 18$	570 (39-6,84%)	219 (40-18,26%)	789 (79 - 10,01%)
Female < 18	51 (1-1,96%)	25 (3-12%)	76 (4 - 5,26%)
<b>Total samples (positive cultures - %)</b>	<b>945 (82-8,67%)</b>	<b>392 (57-14,54%)</b>	<b>1337 (139 - 10,39%)</b>

\* There is one mixed positive culture consisted of two different pathogens.

Table 2 . The distribution of fungal agents according to patients' body region and age

Species	Toenails		Fingernails		Total n (%)
	≥ 18	≤ 18	≥ 18	≤ 18	
<b>Yeasts</b>	<b>35</b>	<b>1</b>	<b>45</b>	<b>4</b>	<b>85 (60,7%)</b>
<i>Candida albicans</i>	3	0	11	1	15
<i>Candida parapsilosis</i>	10	0	6	2	18
<i>Candida tropicalis</i>	1	1	2	0	4
<i>Candida guilliermondii</i>	2	0	1	0	3
<i>Candida glabrata</i>	1	0	1	0	2
<i>Candida sake</i>	1	0	1	0	2
<i>Candida kefyr</i>	0	0	1	0	1
<i>Candida spp.*</i>	1	0	4	0	5
Non-albicans <i>Candida</i> *	13	0	16	1	30
<i>Rhodotorula spp.</i>	1	0	1	0	2
<i>Saccharomyces cerevisiae</i>	2	0	0	0	2
<i>Malessezia spp.</i>	0	0	1	0	1
<b>Dermatophytes</b>	<b>29</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>36 (25,71%)</b>
<i>Trichophyton spp.*</i>	17	0	3	0	20
<i>Trichophyton mentagrophytes</i>	1	0	0	0	1
<i>Trichophyton rubrum</i>	3	0	0	0	3
<i>Trichophyton tonsurans</i>	3	0	0	0	3
<i>Trichosporon spp.*</i>	1	1	0	0	2
<i>Trichosporon asahii</i>	1	1	0	0	2
<i>Trichosporon mucoides</i>	1	0	0	0	1
<i>Geotrichum spp.</i>	0	0	1	0	1
Dermatophyte**	2	0	1	0	3
<b>Molds</b>	<b>13</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>19 (13,57%)</b>
<i>Aspergillus spp.*</i>	3	2	1	0	6
<i>Aspergillus niger</i>	1	0	0	0	1
<i>Aspergillus flavus</i> complex	0	1	0	0	1
<i>Aspergillus fumigatus</i> complex	1	0	1	0	2
<i>Cladosporium spp.</i>	1	0	1	0	2
Saprophytic mold**	2	0	0	0	2
<i>Alternaria spp.</i>	1	0	0	0	1
<i>Acremonium spp.</i>	1	0	0	0	1
<i>Fusarium spp.</i>	1	0	0	0	1
<i>Penicillium spp.</i>	1	0	0	0	1
Mold**	1	0	0	0	1
<b>Total (n)</b>	<b>77</b>	<b>6</b>	<b>53</b>	<b>4</b>	<b>140</b>

n: Number of the isolates

\*: Could not be identified to species level

\*\* : Could not be identified