

# A 3-year survey of dermatophytosis in Belgium

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## Objectives

Dermatophytosis refers to superficial fungal infections of keratinized tissues caused by keratinophilic dermatophytes. They are the most common cause of superficial fungal infections worldwide. Epidemiological studies regarding dermatophyte infections have been conducted in several countries and differences in the incidence and in etiological agents have been reported for different geographical areas. That is why national surveillance of circulating strains causing dermatophytosis is crucial. The Belgian National Reference Center (NRC) for Mycoses conducted a survey on dermatophytes strains circulating from 2012 to 2014. The present study was performed to assess the profile of dermatophytosis and to identify the species involved.

## Methods



Samples collection from January 2012 to December 2014 (Belgian NRC, UZ Leuven+CHU Liège)  
→ 9138 strains



Culture from patients clinically suspected for fungal infections of skin, hair and nails.



Fungal identification was performed by microscopy after subculture



ITS sequencing in case of doubtful identification

## Results

- Among the 9138 samples, 3587 were identified as dermatophytes.
- *Trichophyton rubrum* (*T. rubrum*) is the most prevalent species 56,17% (n=2015) from all sources, followed by *T. mentagrophytes* complex (21,83%, n=783) (Fig. 1).
- Predominance of anthropophilic species causing tinea capitis especially *M. audouinii* responsible for 36,49% (n=163/448) of hair/scalp infection. *Trichophyton violaceum* is also well represented, 12,8% (n=57) (Fig.2).
- The epidemiological study organized in 2013 by the NRC mycoses can partially explain the huge amount of *M.audouinii* and *T. violaceum* isolated during this year.
- *M. canis* and *T. tonsurans* are increasing in hair samples from 2012 to 2014 (Fig.2).
- High prevalence of *T. rubrum* commonly observed in Europe as causal agent of onychomycosis (70,9%, n=1603) followed by *T. mentagrophytes* complex (20,9%, n=455) (Fig. 3).
- Constant increase of *T. rubrum* in nails and on the contrary, constant decrease of *T. mentagrophytes* complex from 2012 to 2014 (Fig.3).
- *T. rubrum* and *T. mentagrophytes* complex are responsible for the majority of skin infections as they represent respectively 40% (n=386) and 24,75% (n=239) of skin dermatophytosis during the study period. *M. canis* was an increasing etiologic agent in skin samples (Fig.4).

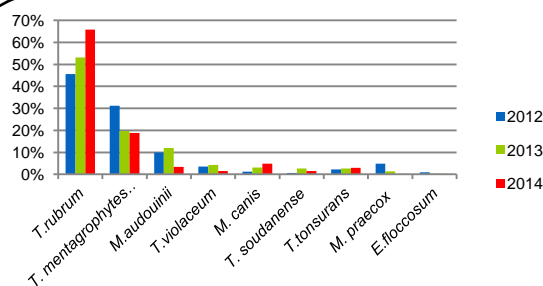


Figure 1: Distribution of the main dermatophytes species isolated from skin, hair and nails in 2012, 2013, 2014

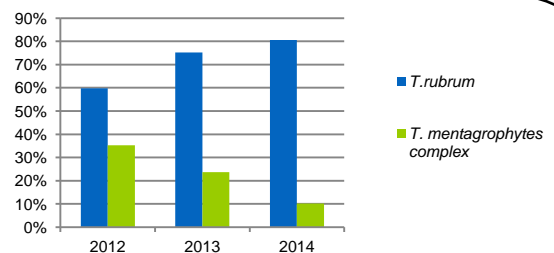


Figure 3: Distribution of the main dermatophytes species isolated from nails in 2012, 2013, 2014.

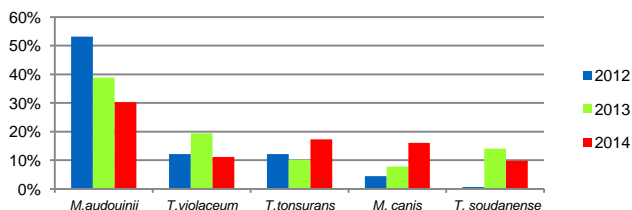


Figure 2: Distribution of the main dermatophytes species isolated from hair in 2012, 2013 and 2014

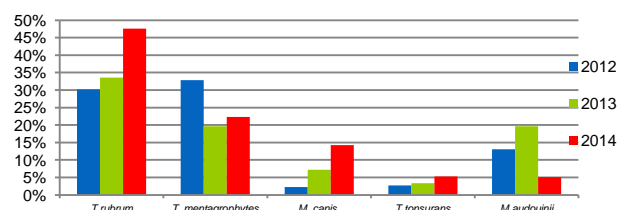


Figure 4: Distribution of the main dermatophytes species isolated from skin in 2012, 2013 and 2014

## Conclusions

The present work has provided recent data on the prevalence of several dermatophytes species circulating in Belgium. Such data is critical for the establishment of therapeutic strategies and measures for prevention and control of dermatophytes infections. Our study confirms the predominance of *T. rubrum* followed by *T. mentagrophytes* in the Belgian population but also highlights the emergence of new anthropophilic species such as *M. audouinii* and *T. violaceum* as causative agents of tinea capitis in children in relation with African immigration.



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