

Challenge MY2208-2

August 2022

Skin scrapings: *Epidermophyton floccosum*

HISTORY

This challenge was sent as a simulated nail sample from a 52 yo with groin rash. Laboratories were expected to isolate and identify *Epidermophyton floccosum*.

CMPT QC/QA/Statistics

All Mycology samples are produced at CMPT according to CMPT internal protocols.

The samples are assessed for homogeneity and stability using in-house quality control methods and random selection of samples before and during production, and post sample delivery. The number of random samples selected is 15% of the total production batch.

The sample was verified by a reference laboratory. *Epidermophyton floccosum* was isolated as a pure culture.

The challenge sample lot was confirmed to be homogeneous and stable for 47 days.

All challenge components have in-house assigned values based on the most clinically appropriate result; the most clinically appropriate result is determined by expert committee evaluation. No further statistical analysis is performed on the results.

SURVEY RESULTS

.10/11 (91%) laboratories reported *Epidermophyton floccosum*; one participant reported *Epidermophyton* species (Table 1).

COMMENTS ON RESULTS

The genus *Epidermophyton* contains two species - *Epidermophyton floccosum* and *Epidermophyton stockdaleae*. *E. stockdaleae* is known to be nonpathogenic, leaving *E. floccosum* as the only species causing infections in humans.

IDENTIFICATION

Colony morphology

On Sabouraud dextrose agar and potato dextrose agar, *E. floccosum* is a moderate grower maturing within 10 days. Colonies are frequently grainy, suede-like in texture and range from olive to yellow or yellow-brown.^{1,2} The central region is slightly raised and marked by radiate furrows.

After several weeks, fluffy white sterile mycelium covers the colony.³ Reverse culture colour is deep yellowish-brown to orange to light brown (Figure 1).

Grading

Reporting *Epidermophyton floccosum*/species was graded Acceptable.

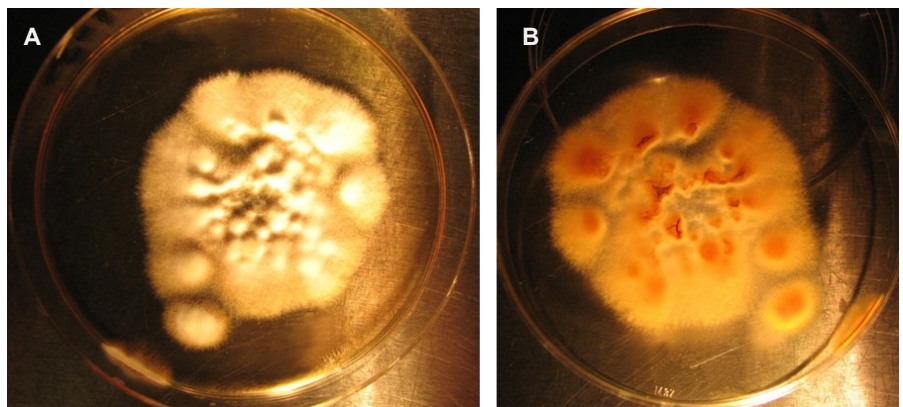


Figure 1. *Epidermophyton floccosum* on Sabouraud's agar. A: front; B: reverse

Table 1. Identification results

Reported	Labs	Grade
<i>Epidermophyton floccosum</i>	10	Acceptable
<i>Epidermophyton</i> species	1	Acceptable
Total	11	

Microscopic characteristics

E. floccosum macroconidia are smooth-walled; broadly clavate to club shaped with rounded ends; they are distoseptate and contain two to six cells and are found single or in clusters (Figure 2).

Unlike *Microsporum* and *Trichophyton*, *E. floccosum* does not produce microconidia.^{3 4}



Figure 2. Microscopic morphology of *E. floccosum*. Lacto phenol cotton blue preparation; 400X magnification.

CLINICAL RELEVANCE

Humans are the primary host of *E. floccosum*, a pathogenic species.³ *E. floccosum* is widespread in most countries of the world, accounting for 5% of all dermatophytes isolated.² *E. floccosum* is an anthropophilic dermatophyte that is transmitted between individuals by contact, particularly in community swimming pool areas, common showers, and gym facilities.

E. floccosum infections usually occur on the skin of the torso, limbs, soles of feet or palms of hands and nails.²

REFERENCES

1. Kwon-Chung KJ, Bennet JE. Dermatophytoses (Ringworm, Tinea, Dermatomycosis). In: *Medical Mycology*. Lea & Febiger; 1992:105.
2. Summerbell RC. *Trichophyton*, *Microsporum*, *Epidermophyton*, and agents of superficial mycoses. In: Versalovic et al, ed. *Manual of Clinical Microbiology*. Vol 2. 10th ed. ASM; 2011:1919.
3. Larone Davise H. *Medically Important Fungi. A Guide to Identification 5th Ed*. 4th ed. ASM Press; 2011.
4. Weitzman I, Padhye AA. Dermatophytes: gross and microscopic. *Dermatol Clin*. 1996;14(1):9-22.