

Challenge MY1709-2

September 2017

Skin: *Microsporium cookei*

**HISTORY**

This challenge was sent as simulated skin scrapping sample. Laboratories were expected to isolate and identify *Microsporium cookei*.

**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. *Microsporium cookei* was isolated as a pure culture after 5 days incubation at 30C on Phytone and Potato dextrose agar.

The challenge sample lot was confirmed to be homogeneous and stable for at least 37 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.

Table 1. Identification Results

Reported	Labs	Grade
<i>Microsporium cookei</i>	5	Acceptable
<i>Microsporium</i> species	3	Acceptable**
Dermatophyte, refer	1	Acceptable**
<b>Total</b>	<b>9</b>	

**SURVEY RESULTS**

8/9 participants correctly identified the isolate to the genus level and reported *Microsporium*. 5/9 laboratories identified the isolated to the species level: *M. cookei*. All participants were given an acceptable grade.

One participant reported "Dermatophyte" and indicated they would refer for further identification; this laboratory was graded "acceptable\*\*"

**Grading**

Reporting *Microsporium cookei* was graded acceptable.

Reporting *Microsporium* species was graded "acceptable\*\*".

Reporting 'Dermatophyte, refer' was graded "acceptable\*\*".

**IDENTIFICATION**

*Microsporium cookei* is a moderately rapid growing fungus.

Colony: the surface is coarse and powdery, with a tannish central area. Under the aerial mycelium is a characteristic deep grape-red pigment. Reverse is deep purplish red (Figure 1).<sup>1</sup>

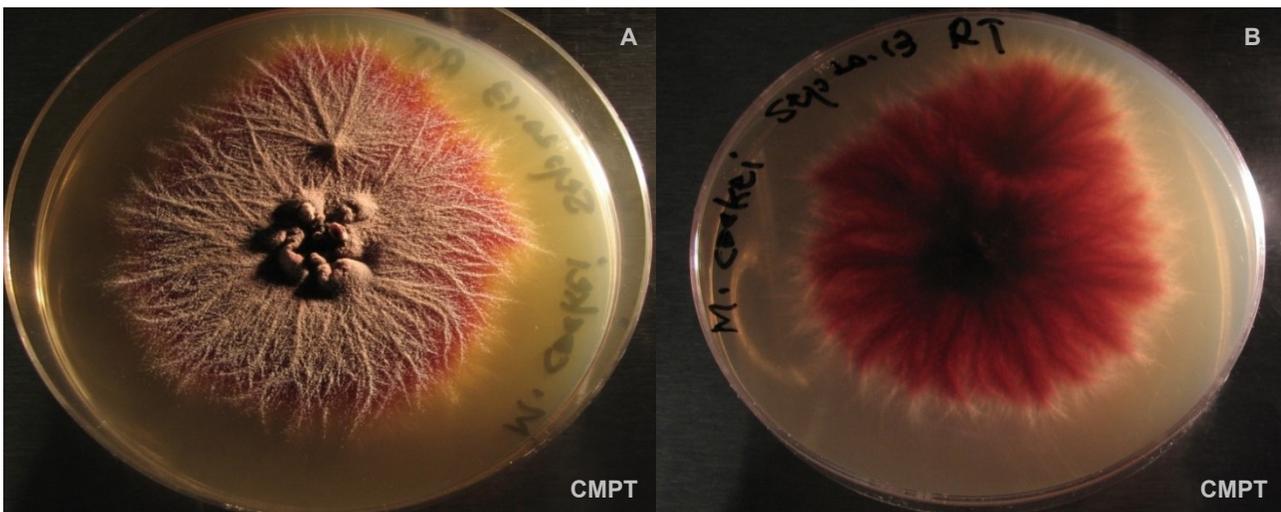
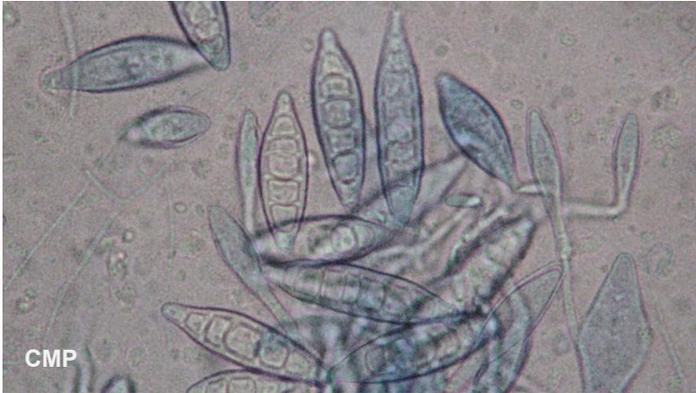


Figure 1. *Microsporium cookei*. Colony on Saboureaud's agar A: front, B: reverse

Microscopic morphology: Hyphae are septate and branched. Macroconidia are oval, rough, and thick walled, and rough, with approximately five to eight cells. <sup>1</sup> The walls are thicker and usually larger than those of *M. gypseum* (Figure 2). <sup>2</sup> Occasional spirals may be seen. <sup>2</sup> Microconidia appear drop-shaped. <sup>3</sup>



**Figure 2.** Macroconidia of *M. cookei*. Lacto-phenol cotton-blue stain under magnification of 400X.

They grow well on Trichophyton Agar No. 1 indicating no special nutritional requirements. <sup>2</sup>

It does not invade hair in vivo, but perforates hair in vitro. <sup>4</sup>

## CLINICAL RELEVANCE

*Microsporum cookei* is a geophilic species widely distributed throughout the world. It is reported in dogs and rodents, but rarely in man. <sup>5,6</sup>

### Mycology Grading scheme

**Acceptable:** Report is technically correct and clinically appropriate. *Slide or Culture or Susceptibility is correctly identified.*

**Acceptable\*\*:** Report contains deficiencies, but within the limits of acceptable. *Culture may be identified correctly only to the class, or genus level. Nomenclature errors would not likely lead to errors in clinical judgement or decision making.*

**Unacceptable:** Report contains errors that could result in incorrect interpretation and actions. *Significant error.*

**Ungraded:** Report cannot be fairly assessed.

## REFERENCES

1. Larone Davise H. *Medically Important Fungi. A Guide to Identification 5th Ed.* 4th ed. Washington DC: ASM Press; 2011.
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3. Summerbell RC. *Trichophyton, Microsporum, Epidermophyton, and agents of superficial mycoses.* In: Versalovic ea, ed. *Manual of Clinical Microbiology.* Vol 2. 10th ed. ed. Washington, DC.: ASM; 2011:1919.
4. Kwon-Chung K.J., Bennet J.E. Dermatophytoses (ringworm, tinea, dermatomycosis). In: *Medical Mycology.* Malvern, Pennsylvania: Lea & Febiger; 1992:105.
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6. Mezzari A. Frequency of dermatophytes in the metropolitan area of Porto Alegre, RS, Brazil. *Rev Inst Med Trop Sao Paulo.* 1998;40:71-76.