

Results Mycology QAP for 1999

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99:2:8A *Candida famata* **71 % correct to species level**
Candida famata has a very similar sugar assimilation pattern to *C. guilliermondii* and it was very pleasing to see that this did not show up in the results. The incorrect answers were spread evenly over a large number of yeasts. *C. famata* is a common environmental isolate it is only rarely recovered from clinical specimens, usually associated with skin.

99:2:8B *Candida guilliermondii* **88 %correct to species level**
Most laboratories had little trouble with this isolate. *Candida guilliermondii* has been isolated from numerous human infections, mostly of cutaneous origin. Systemic infections are rare, although one has been reported in a patient with aplastic anemia. *C. guilliermondii* has also been isolated from normal skin and in sea water, faeces of animals, fig wasps, buttermilk, leather, fish and beer.

99:2:8C *Wangiella dermatitidis* **37 % correct to species level**
40 % misidentified as *Exophiala jeanselmei*
There was considerable confusion between *Wangiella* and *Exophiala* mainly because it's very difficult to tell the difference between an annellide and a phialide without a collarette? Useful confirmatory tests to differentiate *Exophiala jeanselmei*, *Phaeoannellomyces werneckii* and *Wangiella dermatitidis* include growth at different temperatures (2 weeks on PDA at 25, 37, and 40°C) and hydrolysis of casein and tyrosine.

	Growth at 2wks			Hydrolysis of	
	25°C	37°C	40°C	Casein	Tyrosine
<i>Exophiala jeanselmei</i>	+	+	-	-	+
<i>Phaeoannellomyces werneckii</i>	+	+	+	+	-
<i>Wangiella dermatitidis</i>	+	+	+	-	+

Colonies of *Wangiella dermatitidis* are slow growing, initially black and yeast-like, becoming suede-like, olivaceous gray and mould-like with age. The initial yeast-like phase is referred to as the *Phaeococcomyces exophialae* synanamorph, which is characterized by unicellular, ovoid to elliptical, budding yeast-like cells. The yeast-like cells are hyaline and thin-walled when young and becoming darkly pigmented (dematiaceous) and thick-walled when mature. With the development of mycelium or the mould-like stage, flask-shaped to cylindrical phialides without distinctive collarettes are produced. *Wangiella dermatitidis* has been isolated from plant debris and soil and is a recognized causative agent of mycetoma and phaeohyphomycosis in humans. Clinical manifestations include subcutaneous cystic lesions, endocarditis and brain abscesses. *W. dermatitidis* is neurotropic and cerebral infections are frequently seen.

- 99:4:8A** *Onychocola canadensis* **41 % correct to species level**
 This was the first time this organism was sent out in the QAP so the results were quite good. The incorrect answers were spread evenly over a large number of yeasts and moulds. *Onychocola canadensis* is an arthroconidial fungus and a rare cause of nail and skin infections. Colonies are slow growing, white to yellowish with a suede-like surface and brownish reverse. Hyphae form long chains of arthroconidia which are cylindrical to broadly ellipsoidal, 1-2 celled, hyaline to subhyaline, 4-16 x 2-5 µm in size. Older cultures form broad, brown, septate, sterile hyphae with darker brown knobs.
- 99:4:8B** *Trichophyton tonsurans* **85 % correct to species level**
Trichophyton tonsurans has been sent out several times in recent years and proficiency in identification has increased from ~40% to 85%. *T. tonsurans* is an anthropophilic fungus with a worldwide distribution, which causes inflammatory or chronic non-inflammatory finely scaling lesions of skin, nails and scalp. It is a common cause of tinea capitis in the Australian Aborigine. Invaded hairs show an endothrix infection and do not fluoresce under Wood's ultra-violet light.
- 99:4:8C** *Trichophyton terrestre* **67 % correct to species level**
Trichophyton terrestre is a geophilic fungus of worldwide distribution, which may occur as a saprophytic contaminant on humans and animals. It is not known to invade hair *in vivo*, but produces hair perforations *in vitro*.
- 99:6:8A** *Scedosporium prolificans* **57 % correct to species level**
 86 % correct to genus level
 30% of respondents called this *S. apiospermum*. *Scedosporium prolificans* is distinguished from other members of the genus, in particular, *S. apiospermum*, by having basally swollen (inflated), flask-shaped annellides, slower colony development on nutrient agar media, and by not growing on media containing cycloheximide (actidione). Disseminated disease has been reported in immunosuppressed patients especially those with prolonged neutropenia and post-transplantation therapy. However, localized invasive infections, especially septic arthritis and osteomyelitis following penetrating injuries to joints, are now an emerging clinical problem, accounting for 80% of the reported cases. Culture identification is important, because this fungus is often resistant to antifungal therapy and treatment may require surgical intervention.
- 99:6:8B** *Absidia corymbifera* **57 % correct to species level**
 73 % correct to genus level
 20 % misidentified as *Mucor* sp.
 The genus *Absidia* is characterized by a differentiation of the hyphae into arched stolons bearing more or less verticillate sporangiophores at the internode, and rhizoids formed at the point of contact with the substrate (at the node). This feature separates species of *Absidia* from the genus *Rhizopus*, where the sporangia arise from the nodes and are therefore found opposite the rhizoids. The sporangia are relatively small, globose, pyriform- or pear-shaped and are supported by a characteristic funnel-shaped apophysis. This distinguishes *Absidia* from the genera *Mucor* and *Rhizomucor*, which have large, globose sporangia without an apophysis. *Absidia* currently contains 21 mostly soil-borne species. *A. corymbifera* is the only species of *Absidia* known to cause disease in man and animals. It is also the only species of *Absidia* to grow at 40°C. *Absidia corymbifera* is a common human pathogen, causing pulmonary, rhinocerebral,

disseminated, CNS or cutaneous types of infection. It is also often associated with animal disease, especially mycotic abortion. *A. corymbifera* has a world-wide distribution mostly in association with soil and decaying plant debris.

99:6:8C *Rhizomucor pusillus* 47 % correct to species level

24 % misidentified as *Mucor* sp.

Temperature studies are useful here because *Rhizomucor pusillus* is the only *Mucor* look alike that will grow at 45C. The genus *Rhizomucor* is distinguished from *Mucor* by the presence of stolons and poorly developed rhizoids at the base of the sporangiophores [you will have to look in the agar to see them] and it's growth at high temperature. *R. pusillus* was originally described in the genus *Mucor*. It is a rare human pathogen, causing pulmonary, disseminated or cutaneous types of infection. It is more often associated with animal disease. *R. pusillus* has a worldwide distribution and is commonly associated with compost heaps.

99:8:8A *Sporothrix schenckii* 59 % correct to species level

22 % misidentified as *Acremonium* sp.

In *Sporothrix*, the conidia are formed in clusters on tiny denticles by sympodial proliferation of the conidiophore, their arrangement often suggestive of a flower. In *Acremonium* conidia are usually formed in slimy balls at the apex of awl shaped phialide. *Sporothrix schenckii* has a worldwide distribution, particularly in tropical and temperate regions. It is commonly found in soil and on decaying vegetation and is a well known pathogen of humans and animals. Sporotrichosis is primarily a chronic mycotic infection of the cutaneous or subcutaneous tissues and adjacent lymphatics characterized by nodular lesions, which may suppurate and ulcerate. Infections are caused by the traumatic implantation of the fungus into the skin, or very rarely, by inhalation into the lungs. Secondary spread to articular surfaces, bone and muscle is not infrequent, and the infection may also occasionally involve the central nervous system, lungs or genitourinary tract.

99:8:8B *Aspergillus nidulans* 61 % correct to species level

96 % correct to genus level

Colonies are typically plain green in color with dark red-brown cleistothecia developing within and upon the conidial layer. Reverse may be olive to drab-gray or purple-brown. Conidial heads are short, columnar (up to 70 x 30 um in diameter) and biseriate. Conidiophores are usually short, brownish and smooth-walled. Conidia are globose (3.0-3.5 um in diameter) and rough-walled. Cleistothecium of *Emericella nidulans* (teleomorph) show numerous reddish-brown ascospores and are often surrounded by a mass of Hülle cells which are up to 25 um in diameter. *Aspergillus nidulans* is a typical soil fungus with a worldwide distribution. It has also been reported as a causative agent of aspergillosis in humans and animals.

99:8:8C *Scopulariopsis brevicaulis* 60 % correct to species level

93 % correct to genus level

In *Scopulariopsis*, annellides may be solitary, in groups, or organized into a distinct penicillus. Conidia are globose to pyriform, usually truncate, with a rounded distal portion, smooth to rough, and hyaline to brown in color. Most members of the genus *Scopulariopsis* are soil fungi, however a few, in particular *S. brevicaulis*, have been reported as causative agents of onychomycosis however it is also a common contaminant isolated from nails.