Gentamycin inhibits the growth of *Malassezia pachydermatis* in culture

**Carmen Aspíroz a,∗, Yolanda Gilaberte b, Antonio Rezusta c, Teun Boekhout d and Mª Carmen Rubio e**

**a** Servicio de Microbiología, Hospital Royo Villanova, Zaragoza, Spain

**b** Servicio de Microbiología, Hospital Miguel Server, Zaragoza, Instituto de Ciencias de la Salud de Aragón, Spain

**c** Servicio de Dermatología, Hospital San Jorge, Huesca, Spain

**d** Centraalbureau voor Schimmelcultures, Utrecht, the Netherlands

**e** Servicio de Microbiología, Hospital Clínico Universitario, Zaragoza, Spain

**A R T I C L E  I N F O**

Article history:
Received 10 August 2009
Accepted 6 November 2009
Available online 10 de febrero de 2010

**K e y w o r d s:**
Malassezia pachydermatis
Gentamicin
External otitis
Dogs

**A B S T R A C T**

**Background:** *Malassezia pachydermatis* is a yeast of importance in both veterinary and human medicine. **Aims:** To know if *M. pachydermatis* grow on micological media with high concentrations of gentamycin. **Methods:** Twenty *M. pachydermatis* strains were streaked on Sabouraud Dextrose Agar plates with different concentrations of gentamycin. **Results:** All isolates were inhibited when high concentrations of gentamycin were added. **Conclusions:** The use of plates with high concentrations of gentamycin can lead to some important misdiagnoses: firstly, false-negative cultures, and secondly, an erroneous classification of *M. pachydermatis* as a lipid-dependent species. Morever, all of this could be useful in two therapeutic fields: i) in animals, topical gentamycin could be an efficacious treatment for a disease such as external otitis in dogs; ii) in humans, we hypothesize that gentamycin could be regarded as a possible therapy ("antibiotic-lock") for catheter-associated *Malassezia* spp. infections.

© 2009 Revista Iberoamericana de Micología. Published by Elsevier España, S.L. All rights reserved.

---

*Malassezia pachydermatis* is a lipophilic yeast of importance in both veterinary and human medicine. *M. pachydermatis* has been rarely associated with systemic infections of humans, although fungemia has been reported in patients receiving parenteral nutrition. However, infections associated with *M. pachydermatis* in animals are frequent and include mainly dermatitis and otitis in dogs. Canine external otitis (OE) is a disease of multifactorial aetiology, and the microorganism most frequently isolated is *M. pachydermatis*, often in combination with *Staphylococcus intermedius* bacteria. Additionally, *Pseudomonas aeruginosa* is the organism most frequently isolated from dogs with suppurative EO. External otitis related to *M. pachydermatis* is usually secondary to underlying problems. Although the evidence for a pathogenic role for the yeast remains...
Malassezia furfur agar (Bio-Mérieux, Marcy l’Etoile, France). SDA: Sabouraud dextrose agar (Bio-Mérieux, Marcy l’Etoile, France). SDA-C: SDA supplemented with gentamycin. SDA-Gm-c: SDA commercialized plates (Sabouraud glucose agar with other ingredients and antimicrobial agents (Table 1). Plates were read after 5 days of incubation at 35 °C. The cultures were examined every 24 h for 7 days when the results were obtained.

Results are summarized in Table 1. Colonies consistent with M. pachydermatis were visible at 48 h on modified Dixon and at 72 h on SDA and SDA-C-Cy plates. No colonies or quite small colonies were observed on SDA-Gm. Gentamycin at a concentration of 100 mg/L inhibited all strains tested on SDA.

Gentamycin at high concentrations used in commercialized media (100 mg/ml) effectively inhibits the growth of M. pachydermatis on SDA. Growth is also inhibited at other concentrations used in the market (40 mg/L). This fact can lead to some important misdiagnoses if commercialized plates with gentamycin are employed: firstly, false-negative cultures, and secondly an erroneous classification of M. pachydermatis as a lipid-dependent species. According to our findings, high concentrations of gentamycin (> 25 mg/L) have a deleterious effect against M. pachydermatis and other species of Malassezia (personal observation). These findings could be useful in two therapeutic fields: (i) in animals, topical gentamycin could be an efficacious treatment for disease related to M. pachydermatis, and this can be especially convenient in infections where this yeast appears together with bacteria (such as EO in dogs); (ii) in humans, we hypothesize that gentamycin could be regarded as a possible therapy (“antibiotic-lock” or “antifungal-lock”) for catheter-associated Malassezia spp. infections.3,10 For the latter, gentamycin has important advantages, namely its wide action spectrum; its reputation and acceptance as one of the more well-known antimicrobial agent in this type of therapy, and finally its low cost.

Acknowledgement

We would like to thank Nick Thompson for his assistance in translating this manuscript into English.

Author's disclosure

Authors have nothing to declare.

References