



UNIVERSITÀ
DEGLI STUDI DI BARI
ALDO MORO

MYCOLOGY

SHORT MASTER



I LIEVITI DEL GENERE *MALASSEZIA* RICONOSCIMENTO A LIVELLO DI SPECIE

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DIPARTIMENTO
MEDICINA
VETERINARIA





IL GENERE

Organismi commensali

18 specie lipidopendenti

TABLE 1 | Malassezia species and main mammalian hosts.

Malassezia species	Synonyms	Presence on healthy skin	Presence in lesions
<i>M. furfur</i>	<i>Pityrosporum ovale</i>	In humans Sometimes in animals	In humans (PV, FG)
<i>M. pachydermatis</i>	<i>P. pachydermatis</i> , <i>P. canis</i>	In dogs, cats, many others (mostly canids) Sometimes in humans (dog contact)	In dogs, cats, others (SD, OT) Sometimes in humans (FG)
<i>M. sympodialis</i>	<i>M. furfur</i> serovar A	In humans and animals	In humans (AD, SD) Sometimes in cats (OT)
<i>M. globosa</i>	<i>P. orbicularis</i> <i>M. furfur</i> serovar B	In humans and animals	In humans (PV, SD, AD) Sometimes in cats (OT)
<i>M. obtusa</i>		In humans	In humans
<i>M. slooffiae</i>		In pigs, cats (claws) In humans	In humans
<i>M. restricta</i>	<i>M. furfur</i> serovar C	In humans	In humans (SD)
<i>M. dermatitis</i>		In humans	In humans (AD)
<i>M. japonica</i>		In humans	In humans (AD, SD)
<i>M. nana</i>		In cats, horses	In cats, cattle (OT)
<i>M. yamatoensis</i>		In humans	In humans (SD)
<i>M. caprae</i>		In goats	
<i>M. equina</i>	<i>M. equi</i>	In horses	In horses
<i>M. cuniculi</i>		In rabbits	
<i>M. ananabokai</i>		In humans	In humans
<i>M. brasiliensis</i>		In parrots	–
<i>M. psittaci</i>		In parrots	–
<i>M. vespertilionis</i>		In hibernating bats	–

–, not reported; PV, pityriasis versicolor; FG, fungaemia; AD, atopic dermatitis; SD, seborrheic dermatitis; OT, otitis.



I TERRENI CULTURALI

Table 1

The compositions of media commonly used for the culturing of *Malassezia*.

Medium	Composition (per litre of distilled water)	References
Dixon's agar medium	36 g malt extract, 6 g peptone, 20 g bile, 10 mL Tween 40, 2 mL glycerol, 2 mL oleic acid and 12 g agar	[5,26]
Leeming-Notman agar medium	10 g peptone, 5 g glucose, 0.1 g yeast extract, 4 g bile, 1 mL glycerol, 0.5 g glycerol monostearate, 0.5 mL of Tween 60, 10 mL milk and 12 g agar	[27]
Ushijima's medium A (for <i>M. pachydermatis</i>)	10 g trypticase peptone (BBL), 5 g yeast extract (BBL), 3 g glucose, 2 g NaCl, 12 g KH ₂ PO ₄ (anhydrous), 15 g agar, 0.1 g ampicillin, and 0.25 g cycloheximide; adjust pH to 5.5	[28]
Modified CHROMagar <i>Candida</i>	47.5 g of CHROMagar <i>Candida</i> (=10 g peptone, 22 g special chromgen mixture, 0.5 g chloramphenicol and 15 g agar), 8 g ox bile (Oxoid), 1 mL glycerol monostearate and 0.5 mL Tween 60	[30]
Modified CHROMOagar	56.3 g of CHROMagar <i>Malassezia</i> basal medium and 10 mL of Tween 40	[31]





ESAME MACROSCOPICO

mDIXON AGAR



M. slooffiae



M. sympodialis



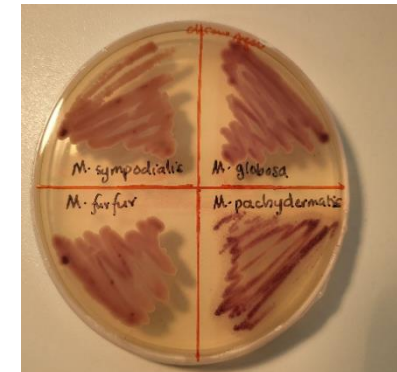
M. globosa



M. furfur



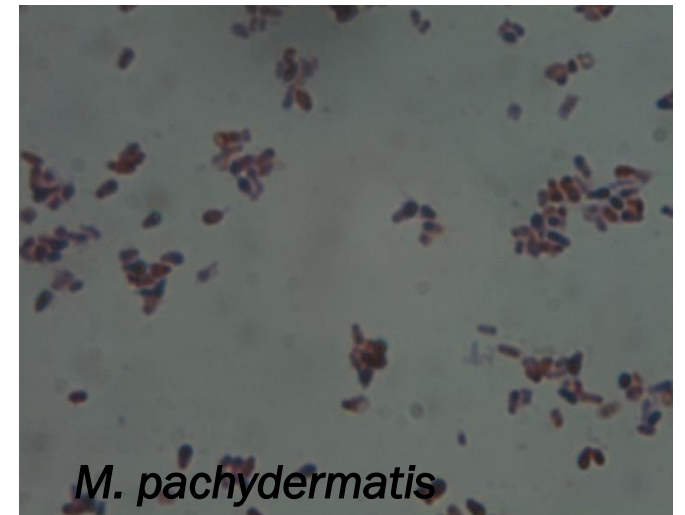
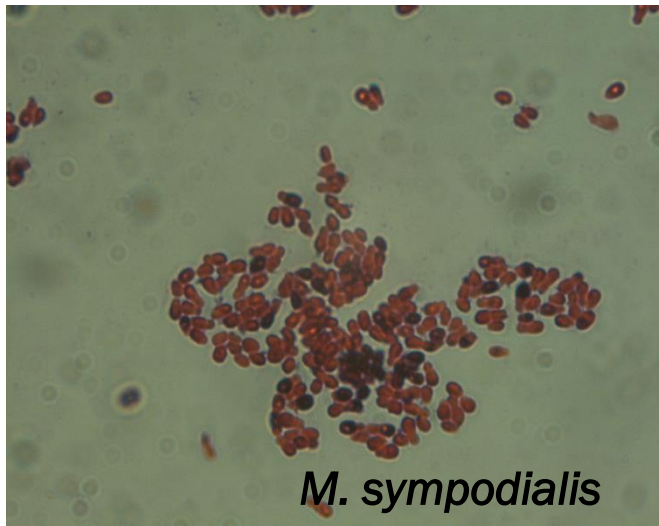
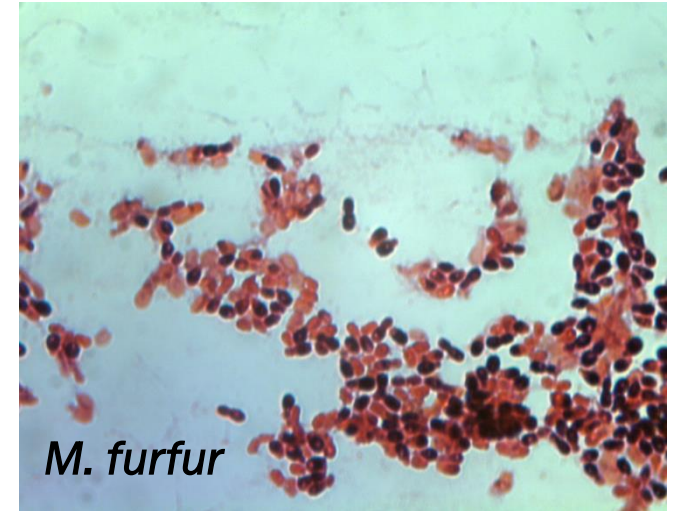
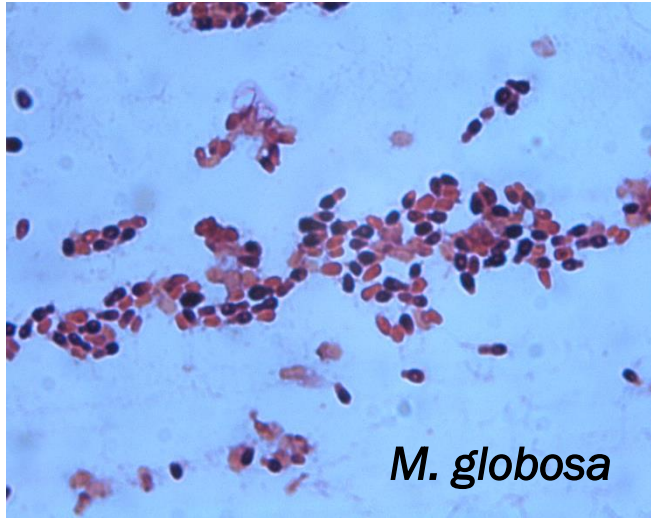
M. pachydermatis



MODIFIED CHROM AGAR



ESAME MICROSCOPICO





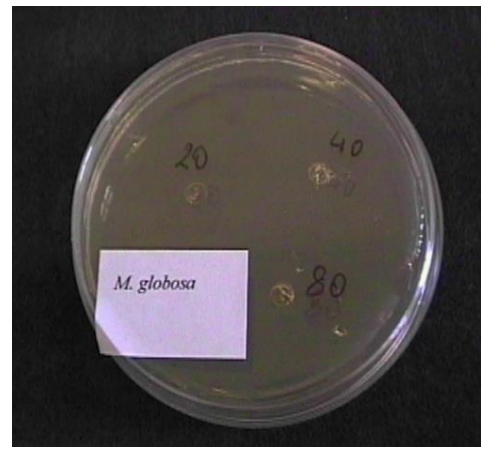
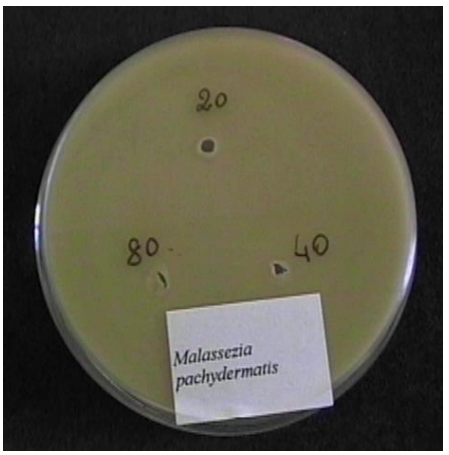
ESAME BIOCHIMICO

Table 2
Morphological, physiological and biochemical characteristics of the 14 currently recognized species of *Malassezia*.

Species	Morphology	SDA (32 °C)	TDT using Tween				Chremophor EL	Catalase	Tryptophan	β-glucosidase	Growth on Dixon's agar at		
			20	40	60	80					32 °C	37 °C	40 °C
<i>M. furfur</i> [5]	G E C	-	+ [-]	+ [-]	+ [-]	+ [-]	+ [-]	+	- or ±	+	+	+	
<i>M. obtusa</i> [5]	E C	-	-	-	-	-	+	-	+	+	- or ±	-	
<i>M. globosa</i> [5]	G	-	-	-	-	-	+	-	-	+	- or ±	-	
<i>M. slooffiae</i> [5]	E C	-	+ or ± [-]	+	+	-	+	-	-	+	+	+	
<i>M. sympodialis</i> [5]	E	-	- or ±	+	+	+	- or ±	+	-	+	+	+	
<i>M. restricta</i> [5]	G E	-	-	-	-	-	-	-	-	+	+ or -	-	
<i>M. dermatis</i> [13]	G E	-	+	+	+	+	± or +	+	?	+	+	+	
<i>M. japonica</i> [14]	G	-	-	±	+	-	?	+	?	?	+	-	
<i>M. nana</i> [16]	E	-	v	+	+	±	-	+	?	-	+	+ or -	
<i>M. yamatoensis</i> [15]	E	-	+	+	+	+	?	+	?	?	+	-	
<i>M. equina</i> [17]	G E	-	±	+	+	+	-	+	?	- [+]	±	-	
<i>M. caprae</i> [17]	G E	-	-	+	+	+ [-]	-	+	?	+ [-]	- or ±	-	
<i>M. cuniculi</i> [18]	G	-	-	-	-	-	-	+	?	+	- or ±	+	
<i>M. pachydermatis</i> [5]	E	+ or ±	+	+	+	+	+	+ or ±	-	+ [-]	+	+	

Globose (G); ellipsoidal (E); cylindrical (C); Sabouraud dextrose agar (SDA); weakly positive (±); rare deviation from usual pattern ([]); unknown (?). Tween diffusion test (TDT); Tryptophan consumption; Chremophor EL; Catalase; Tryptophan; β-glucosidase [34–37].

TWEEN ASSIMILATION





ESAME MOLECOLARE PCR-RFLP

