

DERMATOPHYTE IDENTIFICATION CHART

Terms for the Chart (below)

Fungi: Nucleated, spore-bearing non-chlorophyll producing organisms which generally reproduce sexually and asexually, and whose filamentous, branched somatic structures are typically surrounded by rigid cell walls.

Clavate: Club-shaped.

Hyphae: The basic filamentous unit of structure of the fungi, a tubular filament.

Mycelium: Tangled mass of filamentous hyphae making up a colony (thallus) of a fungus.

Conidium: The specialized portion of a hyphal element that can fragment off as a single cell (spore) from either a lateral or terminal location on the stalk and can reproduce asexually into a new thallus or colony.

Microconidium: Small single cell conidium.

Macroconidium: Larger multi-cellular conidium.

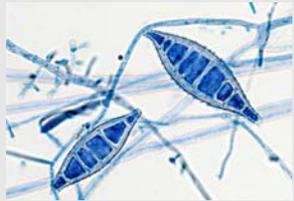
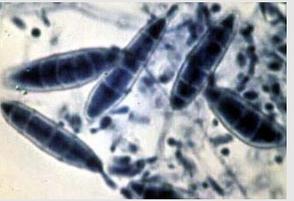
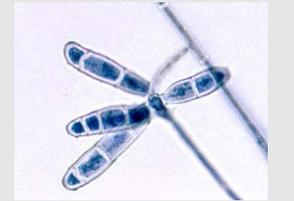
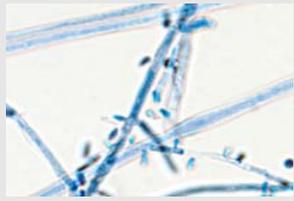
Fusiform: Spindle-shaped (tapered ends).

Pyriform: Pear-shaped.

Usual Time: refers to the number of days until the appearance of spores and pigment on RSM™.

Dermatophytes Commonly Seen in Human and Veterinary Practice

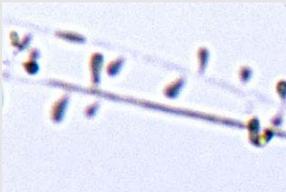
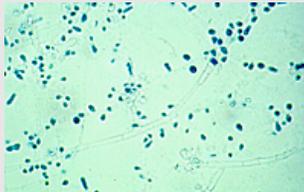
See list of terms above and refer to references.⁽⁵⁻⁷⁾

	<i>Microsporium canis</i>	<i>Microsporium gypseum</i>	<i>Microsporium nanum</i>	<i>Microsporium gallinae</i>	<i>Epidermopyton floccosum</i>
Species and Incidence	Human: 3% (mostly children, usually scalp and skin) Dogs: 70% Cats: 98%	Human: rare (usually scalp and skin) Dogs: 20% Cats: 1%	Human: rare Pigs: usual	Human: rare Fowl: usual	Infects only humans: 1% (usually groin, feet or nails) Rare in animals
Colony Appearance (Top View)	White and fluffy center with golden yellow border Closely spaced radial grooves	Mostly cinnamon-buff (yellowish-brown) with white border Rapidly spreading mycelium	White to buff (yellowish-brown) with a powdery appearance	White to pink with a velvety appearance	Olive green to yellow-mustard color Colony folded and lumpy
Reverse Colony Color (Undersurface view)	*Yellow that dulls to brown with age	Cream, tan to red brown	Initially orange, later red-brown	Red pigment that diffuses into the media	Orange to brown Will not survive refrigeration
Microscopic Macroconidia (taken from RSM™ and Mycobiotic media)	 *Knob end and spiny with a rough, thick wall 6 or more cells	 *Many, spiny thin wall with 3 to 6 cells, rounded ends	 *Many, oval shape with thin spiny wall 1 to 3 cells (usually 2)	 *Many, clavate Often curved with thin smooth wall, 4-10 cells	 *Blunt-clavate Smooth walls In groups of 2, 2- 6 cells
Microscopic Microconidia (taken from RSM™ and Mycobiotic media)	 *Few, form along hyphae Pyriform to round	 Clavate Non-diagnostic	 *Few to moderate, clavate	 Few or abundant Clavate to pyriform Non-diagnostic	 None formed
Usual Time (days)	5 – 10	4 – 6	5 – 7	6 – 10	7 – 10

* = of diagnostic importance

Dermatophytes Commonly Seen in Human and Veterinary Practice (continued)

* = of diagnostic importance

	<i>Trichophyton mentagrophtes</i>	<i>Trichophyton tonsurans</i>	<i>Trichophyton rubrum</i>	<i>Trichophyton verrucosum</i>	<i>Trichophyton equinum</i>
Species and Incidence	Human: 9% (skin, scalp, hair, nails, esp. feet & groin) Dogs: 10% Cats: 1%	Infects only humans: 45% (usually scalp, also skin and nails)	Infects only humans: 41% (usually skin, feet, hands, nails, groin, very rare in hair and scalp) Rare in animals	Cattle: usual Human, horses, sheep: occasional	Human: very rare Horses: usual
Colony Appearance (Top View)	Buff and powdery or white and downy	Velvety with rugose folds Color variable	White to buff, fluffy and downy	White, sometimes yellow or gray Velvety appearance and heaped, smaller colonies	Cream to tan and velvety
Reverse Colony Color (Undersurface view)	Brown to tan (usual), dark red, or yellow	Mahogany to reddish-brown Sometimes yellow or colorless	*Deep red, wine; sometimes brown, yellow or colorless	White, sometimes yellow	Yellow to red-brown
Microscopic Macroconidia (taken from RSM™ and Mycobiotic media)	 Cigar-shaped with thin smoothed walls	 Rare, thin smooth walls, irregular shape Non-diagnostic	 2-8 cells, parallel sides Rarely seen	 *Rare, long, thin and smooth wall Many chlamydospore chains	 Rare, clavate Thin and smooth wall 3 to 5 cells
Microscopic Microconidia (taken from RSM™ and Mycobiotic media)	 * Rare to numerous Round to pyriform Often with coiled or spiral hyphae	 *Variable Branched and tear, clavate or bubble shaped	 *Born singly on hyphae Small, pyriform	 Rare, pyriform to clavate Non-diagnostic	 *Many, on hyphae and pyriform to round
Usual Time (days)	7 – 10	8 – 12	10 – 12	10 – 12, grows best at 37°C	4 – 5

REFERENCES

1. Rinaldi, M.G., Stevens, V.J., and Halde, C. 1973. *A New Sporulation Medium for Primary Isolation and Identification of Dermatophytes*. Abs: AmerSoc. Micro. Meeting, Miami.
2. Taplin, D., Zaias, N. Rebell, G., and Blank, H. 1969. Isolation and Recognition of Dermatophytes on a New Medium (DTM). *Arch. Derm.*; 99:203-209.
3. Rinaldi, M. 1974. Personal Communication.
4. Zaias, N., taplin, D. 1966. Improved Preparation for the Diagnosis of Mycologic Diseases. *Arch. Derm.*; 93:608-609.
5. Rebell, G. and Taplin, D. 1974. *Dermatophytes. Their Recognition and Identification*. U. Miami Press, Coral Gables, Fl. Fine color photographs.
6. Muller, G.H. and Kirk, R.W. 1966. *Small Animal Dermatology*. W.B. Saunders Co., Philadelphia.
7. Wilson, J.W. and Plunkett, O.A. 1967. *The Fungous Diseases of Man*. Univ. Calif. Press. Berkeley.
8. Larone, Davise H. 2002. *Medically Important Fungi: A Guide to Identification*, 4th ed. Washington, D.C.: American Society for Microbiology Press.
9. Koneman, E.W., et al. 2006. *Color Atlas and Textbook of Diagnostic Microbiology*, 6th ed. J.B. Lippincott Company, Philadelphia, PA.

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