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Differentiation of *Trichophyton rubrum* and *Trichophyton mentagrophytes* by Pigment Production[1]

M. S. SUDMAN AND J. A. SCHMITT, JR.

Division of Laboratories, Ohio Department of Health, and Department of Botany and Plant Pathology, Ohio State University, Columbus, Ohio

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The differentiation of certain species of the genus *Trichophyton* poses several problems in the laboratory. The frequency of two species, in particular, has enabled us to study certain diagnostic procedures with the purpose of aiding in rapid identification of these organisms. *T. rubrum* and certain strains of *T. mentagrophytes* bear many resemblances both microscopically and macroscopically. In an effort to alleviate the confusion, Ajello and Georg (Mycopathol. Mycol. Appl. **8**:3–17, 1957) reported that *T. mentagrophytes* attacks hair in vitro, producing perforation pegs, but *T. rubrum* does not. Conant et al. (*Manual of Clinical Mycology*, W. B. Saunders Co., Philadelphia, 1959) used corn meal-agar (CMA) to enhance production of the red pigment of *T. rubrum*; *T. mentagrophytes* fails to produce this pigment.

In the examination of specimens at the Ohio Department of Health Central Laboratory, we found that the red pigment "typical" of *T. rubrum* was produced on potato-dextrose-agar (PDA) within 10 days to 2 weeks, but cultures of *T. mentagrophytes* did not produce this pigment. Many isolates of these two organisms produce red pigment on Sabouraud Dextrose Agar, and on this basis the appearance of pigment is confusing in identification. Although *T. rubrum* (var. *typicus*) produces few if any microconidia, and can be distinguished from *T. mentagrophytes* on this basis, certain strains of *T. rubrum* do produce microconidia similar to *T. mentagrophytes*; therefore, microconidial production is of little help to the technician with limited experience.

Of eight *T. rubrum* organisms isolated or identified at the Ohio Department of Health Laboratory, all produced red pigment within 15 days on PDA; in addition, all were checked for perforation of hair as well as for the nutritional patterns on casein-agar and on casein-agar with thiamine (Georg and Camp, J. Bacteriol. **74**:113, 1957). None produced perforation of hair. Similarly, four isolates of *T. mentagrophytes* plus two cultures received from the Communicable Disease Center (strains X-210 and R-65) produced no red pigment on PDA. Positive identification was confirmed by in vitro hair examination; all six caused perforation of hair.

These findings are presented as an additional aid in the rapid identification of *T. rubrum* and *T. mentagrophytes*. Comparative studies with PDA and CMA have not been done. However, the availability of dehydrated PDA, the general undesirability of dehydrated CMA, and the time and procedural problems in preparing homemade CMA favor the use of the PDA medium for identification of *T. rubrum* by pigment production.

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