OCCURRENCE AND IDENTIFICATION OF NONPIGMENTED STRAINS OF PSEUDOMONAS AERUGINOSA IN THE CLINICAL LABORATORY

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Pseudomonas aeruginosa is one of the gram negative organisms frequently isolated in the diagnostic laboratory from clinical specimens. Although not a primary pathogen, it is encountered as a secondary invader and is one of the more resistant microorganisms to chemotherapy. Rapid identification, therefore, is efficacious in instigating the best therapeutic procedure. Unfortunately, many current publications concerning the identification of this microorganism are misleading as many investigators still consider pigment production an essential characteristic. A few individuals apparently identify only the chloroform-soluble pigment producing strains as *P. aeruginosa* (Liu, J. Bact., **64**, 773, 1952; Ringen and Drake, J. Bact., **64**, 841, 1952; Salvin and Lewis, J. Bact., **51**, 495, 1946; *Bergey's Manual of Determinative Bacteriology*, 6th edition). Adherence to this concept is erroneous and often results in needless confusion for those who occasionally find it necessary to identify this microorganism. It is well known that not only do many strains lose their ability to produce pigment, but also that many original isolates are nonpigmented (Haynes, J. Gen. Microbiol., **5**, 959, 1951; Stanley, Am. J. Med., **2**, 347, 1947; Gaby, J. Bact., **51**, 217, 1946).

These facts have been observed repeatedly in this diagnostic laboratory where an average of from 10 to 12 cultures of *P. aeruginosa* is identified monthly. All of the original isolations are made by streaking the specimens on blood agar plates, incubating at 37 C for 18 to 24 hours, and subculturing on heart infusion agar. There is no problem concerning the identity of the pigmented strains. However, approximately 4 per cent of the strains isolated from clinical specimens are nonpigmented. Identification, therefore, must be based on the following characteristics: (1) Typical, but variable, colonies which may be (a) large, spreading, with generally smooth, convex, translucent centers; effuse, flat, wavy transparent periphery, and irregular, lobulated edges; (b) round, convex, translucent; finely granular or mucoid with entire edges; or (c) round or slightly irregular, slightly raised, umbilicate or umbonate, finely or coarsely granular, simulating a rough colony; (2) a marked odor of trimethylamine (grape-like odor); (3) a gram negative motile bacillus which produces a pellicle in liquid culture media (Flagella stains are not carried out routinely, but occasional determinations have shown the presence of polar flagella); (4) acid production from glucose, but not from lactose and sucrose (prepared in a peptone base broth); (5) gelatin liquefaction; and (6) negative urease. These characteristics are sufficient for the identification of *P. aeruginosa* regardless of pigmentation.

REALTION OF O ANTIGEN TO POLYSACCHARIDE POLAR BODIES OF ENTEROBACTERIACEAE

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Intracellular polar bodies of *Enterobacteriaceae*, stained by Pennington's (J. Bact., **57**, 163, 1949) modification of the periodate-Schiff reaction, have been suggested as representing the loci of the polysaccharide haptene of the O antigen (Lankford, Hoyo, and Lutteringer, J. Bact., **62**, 621,

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