

Rapid Identification of Swarming *Proteus* Using the PathoTec Ornithine Decarboxylase Test Strip

MARLYS E. LUND,* JOHN M. MATSEN,¹ AND DONNA J. BLAZEVIC

Departments of Laboratory Medicine and Pathology, Pediatrics, and Microbiology, University of Minnesota, Minneapolis, Minnesota 55455

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The PathoTec ornithine decarboxylase test strip was evaluated for use in identification of swarming *Proteus*. All 181 strains tested were accurately identified within 4 h.

The need for rapid and accurate identification of bacteria by the diagnostic laboratory is obvious. For certain groups of organisms, rapid identification may indicate appropriate antibiotic therapy before definitive susceptibility test results become available to the clinician. The swarming *Proteus*, with their differing antibiotic susceptibility patterns, are such a group and are readily and most accurately speciated by the ornithine decarboxylase reaction (5).

One hundred eighty-one clinical isolates of swarming *Proteus* were tested with the experimental ornithine decarboxylase (OD) PathoTec strip (kindly supplied by the General Diagnostics Division of Warner-Lambert Co., Morris Plains, N.J.) to determine both the rapidity and accuracy of the reaction. The organisms tested were identified by their ability to swarm on sheep blood agar plates and their reactions on triple sugar-iron agar, motility-indole-ornithine medium (2, 4), and in phenylalanine deaminase-urease broth (1). The identity of 61 atypical strains (e.g., indole-positive *Proteus mirabilis*, indole-negative *Proteus vulgaris*, hydrogen sulfide-negative swimmers), purposely added to the study population, was confirmed according to the methods recommended by Ewing (3). Biochemical characteristics of the strains tested are summarized in Table 1.

The experimental OD test strips were used according to the manufacturer's directions, with the inoculum taken from an area of swarming on a sheep blood agar plate. Tests were incubated in a 37 C dry-bloc heater and were examined at hourly intervals for 4 h. Results are presented in Table 2. Neither false-positive nor false-negative results were observed during the

4-h incubation period. Although not all 103 strains of *P. mirabilis* were examined after 3 h of incubation, those examined (83) showed positive reactions.

Our results with the PathoTec OD test strips are in agreement with those of Rosner, who found PathoTec OD results to be 100% accurate for all organisms tested when compared to the conventional test of Moeller (6). Thus, the PathoTec OD test offers the laboratory a rapid and accurate means to identify the swarming *Proteus*. In as little as 2 h after discovery on a primary plate, almost 70% of *P. mirabilis* strains may be identified, and our results suggest that 100% may be identified in 3 h.

TABLE 1. Biochemical characteristics of 181 swarming *Proteus*

Test	No. positive	
	<i>P. mirabilis</i> (103 strains)	<i>P. vulgaris</i> (78 strains)
Sucrose (TSI) ^a	0	74
H ₂ S (TSI)	97	63
Indole	26	52
Ornithine decarboxylase	103	0
Phenylalanine deaminase	103	78
Urease	103	77

^a TSI, Triple sugar-iron agar.

TABLE 2. PathoTec OD test results

Organism	No. tested	Tests positive (%)			
		1 h	2 h	3 h	4 h
<i>P. mirabilis</i>	103	3.9	69.9	100 ^a	100
<i>P. vulgaris</i>	78	0	0	0	0

^a Eighty-three strains were tested.

¹ Present address: Department of Pathology, University of Utah Medical Center, Salt Lake City, Utah 84132.

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