SHORT COMMUNICATIONS

Pyrrolidonyl Peptidase Activity: a Simple Test for Differentiating Staphylococci

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A test for pyrrolidonyl peptidase activity (the PLP test) has proved useful for differentiating certain Enterobacteriaceae (Mulczyk & Szewczuk, 1970). The preliminary survey reported here of the same test applied to 300 strains of staphylococci shows a high correlation between a positive PLP test and positive coagulase and other tests usually associated with pathogenicity of this organism.

METHODS

Staphylococcal strains. Of 300 strains from pus, sputum, urine, blood, and throat and nose smears, 205 were isolated at the Department of General Microbiology of this Institute and the City Sanitary-Epidemiological Station in Wrocław; the rest were received from the Department of Microbiology of the Medical Academy in Cracow. Assignment of the strains to the genus *Staphylococcus* had been based on catalase activity (Cowan & Steel, 1965) and anaerogenic glucose fermentation (Hugh & Leifson, 1953).

Substrate for PLP test. The L-pyrrolidonyl- β -naphthylamide was prepared in our laboratory (Szewczuk & Mulczyk, 1969), but it is also now obtainable from Cyclo Chemical Division (Los Angeles, California; English agent: Digby Chemical Service, 103 Ebury Street, London S.W. 1).

PLP test. This was done as described previously (Mulczyk & Szewczuk, 1970), except that after incubating the substrate and bacteria for 3 h., 0.3 ml. freshly prepared 0.05 % tetra-azotized *o*-dianisidine (Fast Blue B Salt, Sigma) in 10 % acetic acid was added and the mixture incubated for 30 min at 37°.

Other biochemical tests. The coagulase test was performed according to Jeljaszewicz (1958) with rabbit plasma, coagulase-negative strains being tested three times. Clumping factor was tested for by the method of Cadness-Graves, Williams, Harper & Miles (1943), and phosphatase by that of White & Pickett (1953). Serum bacteriostatic activity was determined by the plate method of Cybulska & Jeljaszewicz (1965).

RESULTS AND CONCLUSIONS

Table 1 shows that the PLP test correlates closely with other tests indicative of potential pathogenicity of the staphylococcus. The PLP test is quick and simple, and the use of a chemical compound as substrate should ensure reproducibility.

Table 1. *PLP, coagulase, clumping factor, and phosphatase in 300 strains of staphylococci and their ability to multiply in normal rabbit serum*

No. of strains	PLP	Coagulase	Clumping factor	Phosphatase	Growth in serum
156	+	+	+	+	+
8	+	+	—	+	+
1	+	+	+	+	—
1	+	+	—	+	—
4	+	—	—	—	—
130	—	—	—	—	—

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