AN ANAEROGENIC STRAIN OF *PROTEUS*

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Whereas anaerogenic strains of *Salmonella* and *Bact. coli* are well known, similar strains of *Proteus* seem rare. Only one material reference has been found (Bengtson, 1919). The organism there described fermented mannite.

Stools, from a child aged 6 years suffering from diarrhoea, were plated on MacConkey agar. The following day the plates yielded several colonies, with irregular edges, somewhat resembling *B. dysenteriae* (Sonne). The colonies consisted of sluggishly motile Gram-negative bacilli. No spores or capsules were seen. Glucose, saccharose, xylose, glycerol, laevulose, galactose were fermented, yielding acid but no gas. A trace of acid was present in maltose on the second and third days only. No action was observed on mannite, dulcite, lactose, starch, dextrin, sorbite, raffinose, inulin, arabinose, adonite, salicin. The media were inspected daily for 10 days. The cultures had an odour like that of *Proteus*. The organism grew under both aerobic and anaerobic conditions. The organism 'swarmed' readily on agar, digested gelatin so that liquefaction was visible in 24 hr. and almost complete in 48 hr., and also digested Dorset's egg and Löffler's serum, though less readily. Litmus milk was clotted and digested, the litmus being reduced. No indole was detected in 7 days. Slight haemolysis was produced on horse-blood agar and in horse-blood broth. Hydrogen sulphide was produced, but in small amount; the methyl-red reaction was positive, and the Voges-Proskauer reaction was negative. Urea was decomposed, and nitrates were reduced.

The organisms from the original MacConkey plates were agglutinated on the slide by serum prepared against *B. dysenteriae* (Sonne) by the Standards Laboratory, Oxford. However, by Dreyer's method no agglutination was seen at dilutions of 1/25 to 1/250 after incubation overnight.

The criteria proposed for *Proteus* in Topley & Wilson's *Bacteriology* (1936) are as follows: 'Highly pleomorphic rods, filamentous and curved cells being common in young cultures. Gram-negative. Actively motile. Characteristic spreading growth on moist media. Often liquefy gelatin, and often produce vigorous decomposition of proteins. Ferment glucose and usually sucrose, but not mannitol or lactose, with fermentation of acid and gas.'

Conclusions

The characteristic 'swarming', the rapid digestion of gelatin, the less rapid digestion of Dorset's egg and Löffler's serum, and the odour of cultures of this organism suggest *Proteus*. Motility, however, is sluggish, and no gas is produced in the carbohydrate media.

It is submitted that this organism should be regarded as an anaerogenic strain of *Proteus*.

SUMMARY

A *Proteus*-like organism is described, which produced acid but no gas in carbohydrate media.

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