PSEUDOMONAS VESICULARE (BÜSING ET AL.)
COMB. NOV.

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SUMMARY. Three cultures of Corynebacterium vesiculare have been studied. They were found to be Gram-negative rods, motile by polar monotrichous flagella and with no action on carbohydrates. The name Pseudomonas vesiculare (Büsing et al.) comb. nov. is proposed for this organism, and ATCC 11426 is designated to be the type strain.

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Büsing, Doll and Freytag (1953) and Büsing and Freytag (1954) described a new species of bacteria isolated from the urinary bladder epithelium of the medicinal leech Hirudo medicinalis. They found the organism to be Gram-positive, nonmotile and with little or no action on media commonly used for identification. Accordingly, the name Corynebacterium vesiculare was given to the organism. As far as is known it has not been isolated from any other source.

Carrier and McClesky (1961) examined a culture of C. vesiculare (ATCC 11426) and found it to be Gram-negative and polar flagellate in contrast to the original description. All other reactions were essentially the same as stated in the original description.

Büsing et al. (1953) stated that a culture of the organism had been deposited in the collections in London, Lausanne and Washington. The National Collection of Type Cultures, London, received and examined the culture but did not take it into the Collection (Steel, 1964). The International Center for Information on and Distribution of Type Cultures, Lausanne, did put it in their collection. The culture sent to the American Type Culture Collection failed to grow and was replaced by a culture from E.V. Morse via G.J. Jann (Les-sel, 1964).

For our study three cultures designated C. vesiculare were obtained: American Type Culture Collection 11426

(courtesy Dr. E.F. Lessel), International Center for Information on and Distribution of Type Cultures (courtesy Prof. P. Hauduroy) and University of California (courtesy Drs. G. J. Jann and D.H. Howard).

Morphology was determined by the Gram stain and the flagella stained by the method of Leifson (1951). Carbohydrate utilization was determined by the method of Hugh and Leifson (1953). Gelatin liquefaction and nitrate reduction were determined by the method of Leifson (1962).

All three cultures were identical morphologically. They were Gram-negative rods measuring about $0.4\ \mu$ by 3 to $4\ \mu$ with a tendency to form filaments and aggregates in nutrient broth. They were poorly motile by the hanging drop method and found to have polar monotrichous flagella (Fig. 1). The flagella had a mean amplitude of $0.64\ \mu$ and mean wave length of $0.98\ \mu$. Based on 25 measurements the standard deviation from the mean wave length was $0.18\ \mu$ and the standard error of the mean wave length $0.036\ \mu$. No spores or capsules were observed.

Figure 1. Pseudomonas vesiculare showing polar monotrichous flagellum characteristic of the organism grown in ordinary media. Leifson flagella stain, X 2,000.

Detectable acid was not produced in the carbohydrates tested, including: glucose, lactose, sucrose, mannose, maltose and xylose. Nitrate was not reduced to nitrite nor was gelatin liquefied in 5 days. IMViC reactions were negative. In blood agar plates the erythrocytes of sheep, rabbits and humans were not hemolyzed. Growth in 0.2% vitamin-free Casamino Acids was very slight after 72 hours at 20°C .

BACTERIOLOGICAL NOMENCLATURE AND TAXONOMY

Colonies on nutrient agar were flat, moist, glistening and orange to tan in color. The pigment was water-insoluble. Growth in nutrient broth was good with formation of a pellicle. Optimum temperature for growth was 20-25°C. No growth after 5 days at 37°C. Optimum pH was 6.8-7.0.

The organism was poorly motile and it is conceivable that the flagellation was overlooked in the original description. Carrier and McClesky (1961) noted some difficulty with the Gram reaction as did we. However, in our opinion, the organism is definitely Gram-negative. Since the other characteristics correspond to the description by Büsing *et al.* (1953), the cultures studied would seem to be authentic C. vesiculare.

The organism obviously is incorrectly classified in the genus Corynebacterium and more properly placed in the genus Pseudomonas or Comamonas. Since the type species of the genus Comamonas is a lophotrichous flagellate, the organism would seem to fit better into the genus Pseudomonas. It is proposed that Corynebacterium vesiculare Büsing *et al.* be renamed Pseudomonas vesiculare (Büsing *et al.*) *comb. nov.* and that ATCC 11426 be designated as the type culture.

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