TWO ADDITIONAL SALMONELLA SEROTYPES:
S. MENHADEN AND S. WILDWOOD

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SUMMARY. The antigenic composition of two new serotypes of Salmonella isolated from fish meal was determined to be (3), (15), 34:1, v:1, 7 (S. menhaden) and (3), (15), 34:e, h:1, w (S. wildwood), respectively.

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The purpose of this note is to provide descriptions of two newly characterized Salmonella serotypes, both of which were isolated from fish meal. The biochemical reactions given by the two cultures were similar to those given by members of the genus Salmonella and each was a typical member of subgenus I of Kauffmann (1960, 1963). Indol was not produced, the methyl red reaction was positive, the Voges-Proskauer test was negative, and the strains grew rapidly on Simmons' citrate medium. Hydrogen sulfide was produced, but tests for urease and phenylalanine deaminase were negative. Growth did not occur in KCN medium, gelatin was not liquefied, and malonate was not utilized. Lysine and ornithine decarboxylases and arginine dihydrolase were produced. Nitrate was reduced to nitrite and sodium mucate was utilized. Glucose, dulcitol, maltose, mannitol, rhamnose, arabinose, xylose, sorbitol, and trehalose were fermented with gas formation, but lactose, sucrose, salicin, adonitol, raffinose and glycerol were not fermented. Neither strain produced detectable amounts of β -galactosidase (ONPG test, method of LeMinor and Ben Hamida, 1962). When tested according to the method of Kauffmann and Petersen (1956), both cultures rapidly utilized D-tartrate and citrate. Culture 1274-62 failed to attack either I- or L-tartrate, while strain 4977-62 utilized I-tartrate rapidly and L-tartrate after five days' incubation.

Culture 1274-62 was a member of Salmonella O antigen group E3 and reacted in absorbed single factor antisera for

O antigens 15 and 34. It was agglutinated to the titer of an O antiserum for S. minneapolis ((3), (15), 34) and removed all agglutinins from that antiserum in absorption tests. Hence, the O antigens of strain 1274-62 were (3), (15), 34.

The flagellar antigens of phase 1 of culture 1274-62 were agglutinated to titer by H antiserum prepared with phase 1 (1, v) of S. bredeney and, in absorption tests, removed all H agglutinins from that antiserum as well as from an antiserum for phase 1 (1, v) of S. london. Further, the phase 1 flagellar antigens of strain 1274-62 were flocculated at the diagnostic dilution of absorbed single factor antiserum for H antigen v. The phase 2 antigens of culture 1274-62 were flocculated to the titer of H antiserum for phase 2 (1, 7) of S. bredeney and removed all H agglutinins from antisera prepared against phase 2 (1, 7) of S. madelia and S. bredeney. Additionally, the flagellar antigens of phase 2 of culture 1274-62 were agglutinated by diagnostic dilutions of single factor 7 antiserum.

Thus, the antigenic structure of culture 1274-62 was determined to be (3), (15), 34:1, v:1, 7 and the designation S. menhaden was given to it.

The second Salmonella culture (4977-62) also was a member of O antigen group E3 and was agglutinated by absorbed single factor antiserum for O antigen 34. The strain was agglutinated to the titer of an O antiserum prepared with S. minneapolis, (3), (15), 34, and removed all agglutinins from the same antiserum in absorption tests.

The phase 1 flagellar antigens of strain 4977-62 were flocculated to the titer of H antiserum for the phase 1 antigens (e, h) of S. reading and, in absorption tests, removed all H agglutinins from that antiserum. Also, these flagellar antigens were agglutinated by diagnostic dilutions of absorbed single factor h antiserum. The flagellar antigens of the second phase of culture 4977-62 were flocculated to titer by antisera prepared against phase 2 (1, w) of S. dar-es-salaam and S. worthington and removed all H agglutinins from these H antisera in absorption experiments. Further, the phase 2 antigens of culture 4977-62 were agglutinated at diagnostic dilution by single factor w antiserum.

Hence, the antigenic composition of culture 4977-62 was characterized as (3), (15), 34:e, h:1, w and the designation S. wildwood was applied to it. It was of interest to note that Dr. E. van Oye of the Institute of Hygiene and Epidemiology,

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Brussels, Belgium, reported (personal communication to Dr. P. R. Edwards, 1962) the isolation of a strain of S. wildwood from Argentinian blood-meal.

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