NOTES

SALMONELLA ALACHUA, A NEW SEROTYPE1

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A new serotype, Salmonella alachua,2 is represented by one culture isolated during a study of salmonellosis in swine in Florida. The culture was isolated from a sample of soil taken from a pen or holding lot in which swine were kept prior to slaughter. The soil was heavily contaminated with feces. The sample was collected by inserting a sterile dry swab into the moist ground and then placing the swab directly into tetraethylate enrichment broth which subsequently was streaked on a brilliant green agar plate. Salmonella anatum was isolated also from this soil specimen. The organism possessed the cultural and biochemical characteristics of the Salmonella. Acid and gas were produced from glucose, mannite, maltose, xylose, arabinoise, inositol, trehalose, sorbitol, and dulcitol. Lactose, sucrose, salicin, adonitol, and raffinose were not fermented. Hydrogen sulfide was produced, citrate

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2 Alachua is the name of the county where the culture was obtained. It is of Indian derivation and was used to describe a large chasm in the ground near Gainesville, Florida.

was utilized, and nitrate was reduced. D-Tartrate was not fermented, nor was gelatin liquefied. Urease was not produced and indole was not formed.

When the somatic antigens of S. alachua were examined, it reacted strongly in Salmonella monoschaui serum but not with sera representing the other O antigens of the Kauffmann-White Schema. It was agglutinated to titer by S. monoschaui serum. In absorption tests it removed all agglutinins from that serum. The H antigens of the culture were monophasic and were agglutinated to titer by Salmonella cerro H serum. When tested with single factor sera z23, z24, and z25 it was agglutinated only by z25. It reacted also with single factor (H)4 of the Arizona schema3 which is the specific fraction of S. cerro related to that group. In absorption tests, S. alachua reduced the titer of S. cerro serum from 1:5,000 to 1:200. After absorption with S. alachua, the S. cerro serum no longer agglutinated Salmonella duesseldorf (z2z4), Salmonella tallahassee (z2z5), Arizona (H)1,2,5, or Arizona (H)1,2,6. The antigenic formula of S. alachua is XXXV: z4, z2.


THIAZOLIDONE ANTIBIOTIC AS AN ANTIMETABOLITE TO BIOTIN

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An antibiotic produced by Streptomyces cinna-

monensis and effective in vitro against Myco-
bacterium tuberculosis has been isolated (Maeda
et al., J. Antibiotics (Japan), 5, 567, 1952). Chemical and physical properties indicate that this antibiotic is perhaps identical to the thia-
zolidone antibiotic isolated by Sobin (J. Am. Chem. Soc., 74, 2947, 1952). Ineffectiveness of the antibiotic in vivo suggests the existence of a substance which counteracts the effect of the antibiotic. From its structural resemblance to desthiobiotin and biotin, the antagonism between biotin and this antibiotic was investigated. It was found that the addition of 0.01 μg per ml of biotin to Kirchner's medium could eliminate the antitubercular effect of less than 20 μg per ml of the antibiotic. Competitive antagonism also was demonstrated, by a cup method, using M. tuberculosis, strain 607, at a concentration of the antibiotic not less than 10 μg per ml (inhibition index: 2,000).

Structurally the antibiotic resembles desthiobiotin more closely than biotin which suggests that the former would antagonize more efficiently the antibiotic effect.

SERRATIA MARCESCENS BACTERIOPHAGEs

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Seventeen cultures of Serratia strains were used in these investigations. Strains No. 1 to 4 were stock cultures from our laboratory; No. 5 to 14 were obtained from Dr. L. A. Rantz of Stanford University; No. 15 and 16 from Dr. M. I. Bunting of Yale University; No. 17 (blood culture) from Dr. Vernon Knight of Bellevue.

| TABLE 1 |
| Table: Action of bacteriophages of Serratia Marcescens against 17 strains of the species |

| Phage I derived from strain 3 | ++ | - | ++ | - | - | - | - | - | - | - | + | ++ | - |
| Phage II derived from strain 7 | - | - | - | + | + | + | + | + | + | + | + | + | + |
| Phage III derived from strain 8 | - | + | + | - | - | - | + | + | - | - | - | - | + |
| Phage IV derived from strain 4 | - | - | + | + | - | - | - | - | - | - | - | - | - |

Legend: ++ plaques formed up to end titer of the phage (10^-11), + plaques formed up to dilutions 10^-4 of the phage, - no action at all, not even with the undiluted phage preparation (first filtrate).

Bacteriophages were prepared by a method similar to that described by M. H. Adams (Methods in Med. Research, 2, 1, 1950). The media used were heart infusion broth (Difco) and 2 per cent agar prepared with the same broth (20 ml per petri dish). Four ml of raw sewage and 2 ml of an 18 hour old broth culture of the strain for which a phage was sought were added to 20 ml of broth in an Erlenmeyer flask and incubated overnight at 37 C. The mixture was shaken gently occasionally, allowed to remain at room temperature for 48 hours, centrifuged at low speed in order to eliminate coarse particles, and then passed through Seitz filters. This first filtrate was cultured for the absence of living bacteria. If sterile bacteriologically, it was tested for lytic action on the homologous and other strains, both in broth (1:5) and on plates. Craigie's procedure of plate typing as described by Edwards and Ewing (Manual for Enteric Bacteriology; Federal Security Agency, Public Health Service, Chapter 4, E 1) was employed. When complete lysis was observed in broth, serial dilutions of the filtrate were made up to 10^-11 dilution and tested on plates. At times, when the