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ISOLATION OF A NEW SALMONELLA SEROTYPE FROM A PANAMANIAN LIZARD

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ABSTRACT. Characteristics of an undescribed serotype of Salmonella, subgenus IV, recovered from a species of Panamanian lizard are reported. Culture 2637-68, isolated from the intestinal tract of Anolis pentaprion, is a member of Salmonella O group 11, whose antigenic composition was found to be 11:z_4, z_{32}:-.

During a current survey for enterobacterial pathogens among lower vertebrates from a variety of habitats in cleared and forested areas of Panama, a previously undescribed Salmonella serotype was isolated from the intestinal tract of a lizard.

The serotype to be described below, NCDC culture 2637-68, was obtained from a specimen of Anolis pentaprion, an arboreal lizard inhabitant of lowland, secondary forest in central Panama. The species from which culture 2637-68 was isolated probably seldom comes into direct or indirect contact with humans. The A. pentaprion was collected 19 April 1968 at Chilibre, Panama Province, a village located among scattered tracts of secondary forest near the Chagres River.

During this study, host specimens were collected alive and brought to Gorgas Memorial Laboratory in Panama City. Portions of their intestinal tracts were aseptically removed after death and cultured for enteric bacteria. All cultures were made within 60 minutes after autopsy, and the bacteriological procedures followed were those recommended by Edwards and Ewing (1962). Final serological identification was determined at the National Communicable Disease Center, Atlanta, Georgia.

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Culture 2637-68 possessed the usual cultural and biochemical characteristics of salmonellae, except that it grew in KCN medium. The results of the biochemical tests are presented in Table 1. The observed biochemical properties place this Salmonella strain in subgenus IV.

Culture 2637-68 is a member of Salmonella O group 11, and the O antigens were agglutinated to the titer of Salmonella aberdeen O antiserum. Subsequent absorption tests with this strain removed all O agglutinins from this antiserum. The flagellar antigens of culture 2637-68 were agglutinated to titer by H antiserum prepared with Salmonella tallahassee and removed all H agglutinins from this antiserum in absorption tests. Agglutination was also obtained in absorbed single factor antiserum for z_{32}. When inoculated into semi-solid medium containing H antiserum for factors z_4, z_{32}, this culture was immobilized, indicating that it was a monophasic serotype. The antigenic composition of this serotype was found to be $11:z_4, z_{32}:-$.

The common and uncontrolled use of antimicrobial agents and the increasing emergence of bacterial strains resistant to antibiotics and sulfanamides prompted the testing of culture 2637-68 for drug susceptibility.

A standardized paper disk-agar plate technique (Bailey and Scott 1966) affording a reasonably accurate estimation of in vitro susceptibility was employed. Commercially prepared dehydrated antimicrobial paper disks were used for the test, and, except where indicated (Table 2), were manufactured by Baltimore Biological Laboratory, Baltimore, Maryland.

The drug susceptibility studies showed that culture 2637-68 was resistant to the sulfanamides but susceptible to most of the broad spectrum antibiotics examined such as Chloromycetin, Coly-Mycin, Kanamycin, and Tetracycline (Table 2).

REFERENCES

Bailey, R.W. and E.G. Scott. 1966. Diagnostic Microbiology, pp. 261-269. The C.V. Mosby Co., Saint Louis, Missouri.

Edwards, P.R. and W.H. Ewing. 1962. Identification of Enterobacteriaceae. Burgess Publishing Co., Minneapolis, Minnesota. 258 pp.

Table 1. Biochemical reactions of a new Salmonella serotype

Substrate or test	Culture 2637-68	Substrate or test	Culture 2637-68
Indol	-	Dulcitol	-
Methyl red	+	Salacin	- 14
Voges-Proskauer	-	Adonitol	-
Simmons' citrate	+	Inositol	-
H_2S (TSI agar)	+	Sorbitol	+
Urease	-	Arabinose	+
KCN	+	Raffinose	-
Motility	+	Rhamnose	+
Kohn's gelatin	+ 4-6	Maltose	+
Lysine decarboxylase	+	Trehalose	+
Arginine decarboxylase	+	Xylose	+
Ornithine decarboxylase	+	D-tartrate	-
Phenylalanine deaminase	-	L-tartrate	-
Gas from glucose	+	I-tartrate	-
Lactose	-	Cellibiose	+ 2-3
Sucrose	-	Glycerol	+ 4-6
Mannitol	+		

+ = positive in 1-2 days; - = negative
Superscript figures indicate day of incubation on which reaction was observed.

Table 2. Results of sensitivity testing of a new Salmonella serotype

Antimicrobial agents*	Culture 2637-68
Chloramycetin (30 mcg)	S
Coly-Mycin (10 mcg)	S
Furadantin (100 mcg)	S
Kanamycin (5 mcg)	S
Mandelamine (3 mcg)	S
Neomycin (5 mcg)	S
Furoxone (100 mcg)	S
Furacine (100 mcg)	S
Nalidixic Acid (5 mcg)	S
Polymyxin B (50 units)**	S
Tetracycline (5 mcg)**	S
Dihydrostreptomycin (10 mcg)	R
Erythromycin (15 mcg)	S
Linomiocin (2 mcg)	R
Novobiocin (5 mcg)	R
Oleandomycin (2 mcg)	R
Oxacillin (1 mcg)	R
Sulfadiazine (0.25 mg)	R
Sulfamerazine (0.25 mg)	R
Sulfathiozole (0.25 mg)	R
Thiosulfil (0.25 mg)	R

* Paper discs impregnated with indicated concentrations of drugs.

** Manufactured by Difco Laboratories, Detroit, Michigan. Use of trade names is for identification only and does not constitute endorsement by the Public Health Service or by the U. S. Department of Health, Education, and Welfare or by the Gorgas Memorial Laboratory.

S = Susceptible R = Resistant

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