

THE PREVALENCE OF 027 VARIATION IN B GROUP SALLMONELLA SEROTYPES ISOLATED IN IRAN

by

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During an investigation on salmonella carriers among pigs in IRAN, 73 strains of *Salmonella heidelberg* were isolated from gall-bladders of 500 healthy pigs slaughtered in TEHRAN abattoir (1). All the isolated strains had the factor 027 in addition to the classical somatic antigens i.e. 1,4,5,12 (7). Since we began that time to investigate the presence of 027 factor in any B group salmonella serotypes isolated in the Department of Infectious Disease of Faculty of Veterinary Medicine in TEHRAN. The present paper gives the results of this investigation.

Materials and Methods

The salmonella strains were isolated from feces or rectal Swabs of healthy animals (9) or from internal organs of carcasses or aborted foetuses, some strains were sent to us from other provinces of IRAN.

The standard methods were used for isolation and identification of salmonella serotypes (7, 8): slide agglutination test for determination of somatic and tube test for flagellar antigens(2). The specific O and H antisera were purchased from Difco Laboratories.

Results

222 strains of salmonella B group of 8 serological types were tested for the presence of 027 antigen.

The results are illustrated on the following table.

Presence or absence of O27 factor in the Somatic antigens of 222 strains of B group Salmonella.

Serotypes	Isolated from	Numbers of strains Isolated	With O 27 factor	Without O 27 factor
S. abortus ovis	Foetuses of sheep and goats	73	36	37
S. derby	Dog (rectal swab)	10	10	—
	Cat (rectal swab)	5	2	3
S. heidelberg	Pig (gall-bladder)	73	73	—
	Dog (rectal swab)	2	2	—
	Egg yolk	2	2	—
S. kisingani	Dog (rectal swab)	1	1	—
	Cat (rectal swab)	1	—	1
S. reading	Dog (rectal swab)	1	1	—
S. saint-paul	Chicken (liver)	1	1	—
	Dog (rectal swab)	4	4	—
S. sofia	Dog (rectal swab)	1	1	—
	Cat (rectal swab)	4	4	—
S. typhimurium	Chicken (liver)	13	7	6
	Pigeon (liver)	1	1	—
	Dog (rectal swab)	1	1	—
	Cat (rectal swab)	16	5	11
	Guinea-pig (liver)	2	—	2
	Mice (rectum)	11	—	11
Total		222	151	71

As is shown in the table , from 222 strains of B group salmonella, 151 strains of 8 different serotypes had 027 factor in their somatic antigenic structure. By studying these 8 serotypes in the Kauffmann-White schema only Salmonella sofia has 027 variation (7); the occurrence of such variation in the other seven serotypes have not been taken under consideration.

It should be added that one of our colleagues, working on salmonella carriers among goats in Iran, isolated 23 strains of Salmonella derby all containing 027 antigen. (10).

DISCUSSION

0 6 and 0 12 variation and its significance in preparing specific antisera in the diagnosis of Salmonellosis in chicken is fully established (3,4,5,6).

0 27 variation so far as is shown in Kauffmann-White scheme is only taken under consideration on seven Salmonella serotypes e.g. S. duiseberg, S. durbanville, S. hessarak, S. kingston, S. mons, S. sofia and S. wilhelmsburg; but regarding to the results of our experiences, at least seven serotypes should be added to the above list.

It has been shown that by infection with certain phages the 0 1 antigen can be transferred to many species of group A, B and D Salmonella (7); therefore it is logical to think that 0 27 antigen could be transferred by the same phenomenon from one serotype to others under natural conditions. This may be the reason for prevalence of 0 27 variation in Salmonella group B in IRAN.

SUMMARY

222 strains of B group Salmonella belonging to 8 serotypes were tested for the presence of 0 27 antigen. These included S. abortus ovis, S. derby, S. heidelberg, S. reading, S. sofia S. saint-paul, and S. typhimurium. All these serotypes proved to have the variation of 0 27 antigen while in the classical type of these species, except S. sofia, as is indicated in the Kauffmann-White schema, this variation does not occurs.

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