ırch. Inst. Razi· **36,37** 79-83 (1986)

ISOLATION AND IDENTIFICATION OF YERSINIA :NTEROCOLITICA SEROTYPE 0:9 IN CATTLE IN IRAN

E. ZOWGHI and A. EBADI

Summary

Encouraged by the findings that a complete cross-reaction exists between Yersinia enterocolitica serotype 0:9 and Brucella abortus, a number of cattle milk samples were investigated for the presence of the former organism in Iran. In bacteriological tests carried out on 732 mil/c samples, 8 were positive for Yersinia enterocolitica serotype 0:9. This is the first report on the occurrence of this serotype in Iran. Serological tests carried out on a large number of sera resulted in finding only one positive serum for the afore mentioned serotype.

Introduction

Yersinia enterocolitica as a causative agent of disease in man nd animals has been under investigation during the past 15 ears.

In almost all parts of the world, particularly in European co-ntries, plenty of data have been accumulated on the isolation and lentification of these organisms from man and different species f animals, namely, cats, chinchillas, cattle, dogs, goats, guinea igs, reindeer, horses, monkeys, swine, sheep and human beings Ahvonen 1972, Akkermans et al 1972, Krogstad et al 1972, 'andepitte 1972, Ahvonen 1973, Esseveld 1973, Krogstad 1974, :hapman et al 1974, Hughes 1979, Seelye et al 1979, Olsson et l 1980, Kapperrud 1981, Terstein et al 1981). To the best of ur knowledge only serotype 0:3 has so far, been reported from ran (Haghghi & Vahdat 1971). This was from a 10 months old hild with symptoms of chronic diarrhea.

The isolation and identification of Y.e.s.0:9 in cattle in Iran ; for the first time reported in this paper.

Materials and Methods

Reference strains

The reference strains of Brucella abortus (B.a.) 544 and Y.e.s.0:9 were obtained, freeze dried, from the Central Veterinary Laboratory Weybridge, England.

Brucella antigens

The Rose Bengal Plate Test (R.B.P.T), Serum Agglutination Test (S.A.T.) and Milk Ring Test (M.R.T.) antigens were prepared and standardised according to the method recommended by Alton et al 1975.

Y.e.s.0:9 antigens

The Yersinia enterocolitica sertype 0.9 R.B.P.T, Yersinia O and oH antigens were prepared according to the method described by Mittal & Tizard (1979).

B.abortus and Y.e.s.0:9 anti-sera

The monospecific anti B.abortus (Anti-A) and anti Y.e.s.0:9 sera were prepared and tested according to Alton et al (1975) and corbel (1973).

Samples

Cattle milk samples obtained in test tubes in dairy farms were dispatched to the Razi Institute for investigaton.

Bacteriological tests

The M.R.T. positive samples were inoculated onto serum dextrose agar antibiotic plates for isolation of Br. a. Eosine Metheylene Blue Agar (E.M.B.A.), Salmonella shigella Agar (S.S.S) and MacConkey Agar (Mc.A) media were inoculated for isolation and identification of Y.e.s.0.9.

Serelogical tests

The R.B.P.T and S.A.T were performed in the presence of B.a. and Y.e.s. 0:9 antigens according to Alton et al (1975),

3rinley Morgan et al (1980) and Mittal & Tizard (1979).

Results

ısolation of the organism:

From a total number of 732 cattle milk samples that under-vent investigation for the existance of Y.e.s. 0:9 infection in cattle n Iran, the organism was isolated and identified in 8 cases. Cha-acterisation of the isolates was carried out in comparison with he biochemical charateristics of the reference strain of Y.e.s. 0:9.

ȝerelogical tests:

The results of the serological tests and the end points are ummerized in the Table. While Br. a. and Y.e.s. 0:9 0 antigen howed cross-reaction with the same titres when Br. a. and Y.e.s.):9 anti-sera were used, the H. antigen of Y.e.s. 0:9 specifically eacted with the latter anti-serum. High titre of the unknown ɔovine serum with H antigen of Y.e.s. 0:9 is indicative of the ɔresence of anti-Y.e.s. 0:9 antibodies in the tested serum.

The results of S.A.T. (end point titres) of anti-sera against Y.e.s. 0:9 0 and H and Br. a antigens.

ınti-serum	B.a.antigen	Y.e.s. 0:9 0 antigen	Y.e.s. 0:9 H antigen
3.a.	1/2560	1/2560	1/640
Y.e.s. 0:9	1/1280	1/1280	1/5120
Jnknown bo-ɔine serum	1/1280	1/2560	1/5120

Discussion

The serological cross-reaction between Br.a. and Y.e.s. 0:9 ɜtrains was first described by Ahvonen and colleagues in 1969. Subsequently this phenomenon and the isolation of Y.e.s. 0:9 in nan and animals were frequently reported from different parts ɔf the world (Corbel and Cullen 1970, Hurvell, Ahvonen and Thal 1971, Akkermans and Hill 1971 & 1972 & 1973, Corbel ınd Day 1973, Hurvell and Lindberg 1973, Nielsen et al 1981,

Corbel 1982).

During the present study the authors succeded to isolate and identify Y.e.s. 0:9 from some milk samples of cattle in Iran. The cross-reaction phenomenon between this organism and Br. a. strain was also observed.

Since the organism was mostly isolated from the apparently healthy cattle, it might be speculated that no danger can be expected from this agent at the present time in Iran. In this connection, and as brucellosis is very important in Iran at this time, it seems to be necessary to quote the suggestion made by Corbel in 1982, "In relation to the control of brucellosis eradiation procedures, serological cross-reaction produced by other organisms tend to be of little significance until prevalence of the disease has fallen to a very low level".

By taking this suggestion in to consideration, one can conclude that the existance of Y.e.s. 0:9 infection among cattle might creat problem in Iran in future.

Acknoledgement

Our grateful thanks are due to Mr. S. Ziabakhsh, Mr. M. Kiani and Mrs. Z. Naserkhaki for their technical assistance, and Dr. M.R. Firouzi-Bandpay for their valuable comments in preparing the paper.

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