Salmonella Umbadah: A new Salmonella serovar isolated from cattle in Sudan

ARTICLE in TROPICAL ANIMAL HEALTH AND PRODUCTION · MAY 2009
Impact Factor: 0.82 · DOI: 10.1007/s11250-009-9353-4 · Source: PubMed

CITATIONS
3

READS
46

8 AUTHORS, INCLUDING:

Mayha Mohammed Ali Nor Elmadiena
Emirates College of Technology
2 PUBLICATIONS  5 CITATIONS
SEE PROFILE

Adil Ali EL Hussein
University of Khartoum
34 PUBLICATIONS  42 CITATIONS
SEE PROFILE

Mohamed Amin Mohamed Siddig
University of Khartoum
9 PUBLICATIONS  51 CITATIONS
SEE PROFILE

C. Anne Muckle
University of Prince Edward Island
52 PUBLICATIONS  699 CITATIONS
SEE PROFILE

All in-text references underlined in blue are linked to publications on ResearchGate, letting you access and read them immediately.

Available from: C. Anne Muckle
Retrieved on: 10 January 2016


**Salmonella Umbadah: A new Salmonella serovar isolated from cattle in Sudan**

H. E. H. Hag Elsafi · M. M. Nor Elmadien · A. A. El Hussein · M. A. M. Siddig · C. A. Muckle · L. Cole · E. Wilkie · K. Mistry

Accepted: 8 April 2009 / Published online: 28 April 2009
© Springer Science + Business Media B.V. 2009

**Keywords** *Salmonella* · Cattle · *Salmonella* Umbadah · New serovar · Sudan

**Introduction**

Salmonellosis is a significant foodborne zoonosis and public health issue worldwide (Berndt et al. 2007). In Sudan, the prevalence of *Salmonella* serovars in humans and animals is not well documented, as *Salmonella* are not routinely isolated and identified. Only a few studies of *Salmonella* isolates from animals in Sudan have been published (Soliman and Khan 1959; Khan 1961; 1962; 1970; 1971; Khogali et al. 1973; Yagoub et al. 1987; Mamoun et al. 1992; El Tom et al. 1999). AbdelRahman et al. (1995) reported the isolation of *Salmonella* serovars Dublin and I:13, 23:b:- ; a monophasic variant, from cattle. Yagoub et al. (2006) reported the isolation of *Salmonella* Paratyphi A and *Salmonella* Paratyphi B from cheese in Khartoum, Sudan.

During the time period October 2004-May 2005, we conducted a study to determine the occurrence, distribution, and antimicrobial resistance patterns of *Salmonella* serovars isolated from cattle in the Khartoum State, Sudan.

**Materials and methods**

A total of 119 cattle faecal samples were collected for isolation of *Salmonella* species. Salmonellae were isolated from faecal samples and identified following conventional standard methodology previously described (Molla et al. 2006).

*Salmonella* isolates were tested by the disc diffusion method for antimicrobial susceptibility following the guidelines of the National Committee for Clinical Laboratory Standards (National Committee for Clinical Laboratory Standards, NCCLS, 2000). The antimicrobial drugs tested were amikacin, amoxicillin-clavulanic acid, ampicillin, apramycin, chloramphenicol, cefoperazone, cefazidime, cefotaxime, colistin, furazolidone, gentamicin, nalidixic acid, ciprofloxacin, norfloxacin, neomycin, streptomycin,
sulfamethoxazole-trimethoprim, compound sulfonamide and tetracycline.

Salmonella isolates were shipped for serotyping to the OIE Reference Laboratory for Salmonellosis, Public Health Agency of Canada. Serotyping was performed as previously described (Molla et al. 2006).

Results and discussion

Four Salmonella isolates were recovered from 119 cattle faecal samples (3.4%) collected in Khartoum State. Two isolates were serotyped as Salmonella Drogana. Serotyping of the other two Salmonella isolates resulted in the antigenic formula 1,3,19:d:1,2 which was not listed in the 8th Edition of the Antigenic Formulas of the Salmonella Serovars (Popoff 2001) at the time of testing. These two Salmonella isolates were shipped for confirmation to the WHO collaborating Centre for Reference and Research on Salmonella, Institut Pasteur, Paris, France. The serological designation was also confirmed by the National Salmonella Reference Laboratory at the Centers for Disease Control and Prevention (CDC) Atlanta, GA, USA, and the Institut für Hygiene und Umwelt, Hamburg, Germany. The new serovar was named Salmonella Umbadah and assigned as Salmonella enterica subspecies enterica on the basis of its biochemical characteristics. Salmonella Umbadah is now listed in the 9th Edition of the Antigenic Formuле of the Salmonella Serovars (Grimont and Weill 2007).

The four Salmonella isolates were susceptible to all the antimicrobial drugs tested. This could reflect animal husbandry in remote areas within Khartoum State, Sudan, where antibiotic usage is limited and indigenous cattle do not come into contact with animals from outside sources. Further surveillance is underway to isolate and characterize Salmonella serovars at both the phenotypic and genotypic levels from different animals, food, water and human sources in Khartoum, Sudan.

Acknowledgements We are grateful to Professor P.A.D. Grimont, WHO Collaborating Centre for Reference and Research on Salmonella, Institut Pasteur, Paris, France, for the serological confirmation and biochemical testing of the isolates. The further assistance of the National Salmonella Reference Laboratory at the Centers for Disease Control and Prevention (CDC) Atlanta, GA, USA, and Institut für Hygiene und Umwelt, Hamburg, Germany, is also gratefully acknowledged.

References


