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**PREVALENCE OF ANTIBODIES OF
CAMPYLOBACTER FETUS SUBSPECIES VENEREALIS
AND SUBSPECIES FETUS IN CATTLE
IN NORTHERN JORDAN**
(With Two Tables)

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مدى تواجد الأجسام المناعية للكامبيلوباكتريز الجنيني
تحت النوع الجنسي وتحت النوع الجنيني في الأبقار في شمال الأردن

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فحصت ٥٨٧ عينة مصل دم لتحديد الأجسام المضادة لجراثمة الكامبيلوباكتريز الجنيني في الأبقار في شمال الأردن . وذلك باستخدام تجربة تثبيت المكمل . لقد كانت نسبة الأجسام المضادة في ٢٢٫٩٪ وكذلك ٢٪ ضد تحت النوع الجنسي وتحت النوع الجنيني . وبالتالي . وأن هذه النتائج تدل ولأول مرة في الأردن أن الأبقار قد سبق وأن تعرضت للاصابة بتحت أنواع جراثمة الكامبيلوباكتريز المذكورة ، مما يؤكد على أهمية اتخاذ الاجراءات الضرورية للسيطرة على المرض .

SUMMARY

587 serum samples were examined for the prevalence of Campylobacter fetus antibodies in cattle in northern Jordan utilizing the complement fixation test (CFT). Antibodies were found in percentages of 22.9% and 2% against the subsp. *venerealis* and the subsp. *fetus*, respectively. These findings indicate, for the first time in Jordan, the exposure of cattle to these Campylobacter subspecies and urge the necessity of control measures.

INTRODUCTION

Campylobacteriosis is widely spread in many countries in the world. Campylobacter fetus subspecies *venerealis* is an important cause of abortion and infertility in cattle and the subspecies *fetus* is a cause of abortion in sheep (MacLAREN and WRIGHT, 1977). The isolation of the microorganism and/or the application of some serological techniques like vaginal mucous agglutination test and immunofluorescence are of confirmatory importance. However, the CFT had been shown, experimentally,

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to be useful screening test (MITSCHERLICH and LIESS, 1958).

In Jordan, neither bacteriological isolation nor serological examinations are conducted and the diagnosis of campylobacteriosis among animals depends mainly on the case history and symptoms. This study was carried out for surveying the prevalence of C.fetus subsp. venerealis and C.fetus subsp. fetus antibodies among cattle in northern Jordan.

MATERIAL and METHODS

Five hundred and eighty seven cattle blood samples representing the herds locations and populations were collected from different farms and from the abattoirs in northern Jordan. Their detailed numbers regarding the source, breed, sexes and age are displayed in table 1. A strain* of Campylobacter fetus subspecies venerealis and of Campylobacter fetus subspecies fetus were used for the preparation of the antigen by phenolic and heat treatments according to MITSCHERLICH and LIESS (1958). The guinea-pig complement, the amboceptor 6000 (Behringwerk AG, Marburg, Germany) and U bottom microtitration plates (Greiner Labor, Technik, Germany) were utilized for setting of the CFT. the indicator haemolytic system consisted of 2% sensitized sheep RBCs.

Titration of the complement was done just before every setting. The inactivated sera (56°C for 20 min.) were examined by the tube CFT according to MITSCHERLICH and LIESS (1958) and by the microtitration technique according to LAUSBERG (1979). Control settings with known positive and negative antisera which were obtained from the abovementioned institute in Germany were also included. The results in both methods were scored as 4+, 3+, 2+, 1+ and -, when the haemolysis was inhibited 100%, 75%, 50%, 25% and 0.0%, respectively. The cut-off point of 1:2 showing a 4+ reaction was interpreted as positive while the 3+ or 2+ reactions were considered as doubtful.

RESULTS

When the antigen of subspecies venerealis was used, 135 samples (22.9%) were seropositive, 115(19.6%) were doubtful, and the rest of 337(57.4%) were negative. The highest obtained titre was 1:32. On the other hand, when the antigen of subspecies fetus was used, only 12 samples (2.0%) were seropositive, 82 samples (13.9%) were doubtful, and 493(84%) were negative. The highest titre was 1:8 (Table 2).

DISCUSSION

It is obvious that the subspecies venerealis is involved in cattle affections more (eleven times higher) than the subspecies fetus in northern Jordan (Table 2). A total of 18 and 27 of the examined cows had a history of abortion and repeat breeding, respectively. These animals were seropositive and showed titres ranging from 1:2 - 1:32 against the two used antigen.

*: Obtained from the Institut fuer Mikrobiologie und Tierseuchen der Ti-Ho, Hannover, W. Germany.

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Interference due to vaccination (RUCKERBAUER *et al.*, 1971) or cross reactivity with Brucella abortus antibodies (BOKKENHEUSER, 1972; MITSCHERLICH and LIESS, 1958) is, most likely, not encountered in our findings since such vaccination is not practiced in Jordan (ANON, 1984) and the incidence of Brucella abortus among cattle is low (4.6%) and restricted to very limited geographical sites (EL-SUKHON, 1989 and ANON, 1984).

The only information about the incidence of Campylobacter microorganism in the region came from the adjacent country (Syria) in 1981 where subspecies fetus was isolated from an aborted ewe (MUSTAFA, 1981) but nothing was reported about the incidence of the subspecies venerealis.

These informations strengthen the importance of this microorganism in infertility incidence among cattle in this province in Jordan where more than half of the cattle in this country is located (ANON, 1984) which verify the needs for preventive measures.

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Table (1): Particulars of the examined cattle for the two types of Campylobacter fetus antibodies in northern Jordan.

Source	Breed*		Sex		Age#					
	L	F	Male	Female	a	b	c	d	e	f
Abattoir	279	53	52	280	71	110	40	34	23	54
Farms	171	84	43	212	57	80	43	34	22	19
Total	450	137	95	492	128	190	83	68	45	73

*: Locally bred; F: recently imported.

#:

a:1-2; b:2-4; c:5-6; d:7-8; e:>8; f: not determined

Table (2): Numbers and titres of CFT reactors with the two types of Campylobacter fetus antigens in northern Jordan in 1984.

Reaction	subsp.venerealis antigen					Subsp.fetus antigen					
	Titre					Titre					
	1:2	1:4	1:8	1:16	1:32	Total	1:2	1:4	1:8	1:16	Total
Positive	37	47	40	9	2	135	5	4	3	0	12
Doubtful (3+)	43	17	15	0	0	75	19	12	5	0	36
Doubtful (2+)	33	4	3	0	0	40	26	14	6	0	46
Negative (-)						337					493