Acta vet. scand. 1972, *13*, 263—265.

Brief Communication

THE IDENTIFICATION OF AN ORGANISM ISOLATED FROM MANED SHEEP AS MYCOPLASMA MYCOIDES SUBSP. MYCOIDES

The natural host-range of M. mycoides subsp. mycoides is generally believed to be restricted to cattle, although the production in experimental conditions of a generalized infection of sheep and goats has been reported on some occasions.

Brack (1966) described 15 fatal cases of an infectious disease occurring in "maned sheep" or "maned show jumpers" (Ammotragus lervia) kept in a zoo in the City of Frankfurt, Germany. An organism exhibiting the general characteristics of mycoplasmas was isolated from various organs in 14 cases.

The present communication reports on the identification as M. mycoides subsp. mycoides of one of the isolates, strain 2833, kindly provided by Dr. M. Brack.

The determination of the biochemical properties of strain 2833 following cloning was strongly suggestive of its relatedness to M. mycoides (Table 1). The liquefaction of inspissated horse serum, a property that has not been demonstrated thus far in any other Mycoplasma or Acholeplasma species, is particularly noteworthy.

In consequence, a serological comparison was made between strain 2833 and strains PG 1 and PG 3, the type or reference strains of M. mycoides subsp. mycoides and M. mycoides subsp. capri, respectively. In addition, M. agalactiae (strain PG 2), an-

Table 1. Biochemical properties of M. mycoides subsp. mycoides, M. mycoides subsp. capri and Brack strain 2833.

Mycoplasma	Glucose	Mannose	Arginine	Tetrazol. red., aerob.	Film and spots	Phosphatase	Serum digestion
M. mycoides subsp. mycoides, PG 1	+	+	0	+	0	0	0
M. mycoides subsp. capri, PG 3	+	+	0	+	0	0	+
Brack strain 2833	+	+	0	+	0	0	+

Table 2. Serological relations between M. mycoides subsp. mycoides, M. mycoides subsp. capri and Brack strain 2833.

Mycoplasma antigen	Antiserum prepared against M. mycoides subsp. mycoides, PG 1					
	GI	MI	GP	IMF	IHA	CF
M. mycoides subsp. mycoides, PG 1	+	32	(+)	80	1,048,576	64
M. mycoides subsp. capri, PG 3	0	0	+	<10	262,144	64
Brack strain 2833	+	8	0	<10	32,768	128

Table 2 (continued).

Mycoplasma antigen	Antiserum prepared against M. mycoides subsp. capri, PG 3					
	GI	MI	GP	IMF	IHA	CF
M. mycoides subsp. mycoides, PG 1	0	0	0	<10	32,768	0
M. mycoides subsp. capri, PG 3	+	64	+	40	32,768	256
Brack strain 2833	0	0	0	<10	32,768	128

Table 2 (continued).

Mycoplasma antigen	Antiserum prepared against strain Brack 2833					
	GI	MI	GP	IMF	IHA	CF
M. mycoides subsp. mycoides, PG 1	+	8	+	160	4,096	16
M. mycoides subsp. capri, PG 3	0	0	+	<10	16,384	64
Brack strain 2833	+	256	+	160	8,192	256

Antibody titres expressed as reciprocal of serum dilution. GI and GP: undiluted serum.

other classical Mycoplasma species associated with infections in sheep and goats, was included in the study.

The serological tests used were: the disc growth inhibition (GI), metabolic inhibition (MI), growth precipitation (GP), indirect hemagglutination (IHA), indirect immunofluorescence (IMF) on agar colonies, and complement fixation (CF) tests.

The serological crossings between strain 2833, PG 1 and PG 3 are demonstrated in Table 2. As no heterologous reactions at all were found in tests between M. agalactiae PG 2 and the remaining strains, except for slight and insignificant crossings in the IHA and CF tests, these results are not tabulated.

Firstly, it will be seen that PG 1 and PG 3 are serologically distinct in the GI, MI and IMF tests, whereas a one-way crossing is found with the GP test. A very extensive sharing of antigens is demonstrable, on the other hand, with the IHA and CF tests. These observations are pertinent to the discussion whether the taxons represented by PG 1 and PG 3 should still be regarded, as they are now, as two subspecies of M. mycoides, or whether they should rather be regarded as two separate species.

Secondly, strain 2833 is found to be serologically closely related to PG 1, not only on the basis of IHA and CF tests, but also using the highly specific GI and MI tests. In addition, one-way crossings between the Brack strain and PG 1 are found in the GP and IMF tests. On the other hand, the Brack strain is serologically distinct from PG 3 in GI, MI, and IMF tests. It can thus be concluded that strain 2833 isolated from maned sheep should be classified as M. mycoides subsp. mycoides.

The association of this organism with a natural outbreak of disease in a host other than cattle is noteworthy. Also the practical implications and potential risks of outbreaks of M. mycoides infections in zoo animals in a country otherwise free, as far as known, of such infections, are very obvious.

H. Ernø, E. A. Freundt, A. Krogsgaard-Jensen and *S. Rosendal*
The Institute of Medical Microbiology,
University of Aarhus, Denmark.

REFERENCES

Brack, M.: Mycoplasmose bei jungen Mähnenspringern (Ammotragus lervia). (Mycoplasmosis in maned show jumpers). Berl. Münch. tierärztl. Wsch. 1966, *79*, 169—172.

(Received April 4, 1972).

Reprints may be requested from: H. Ernø, Institute of Medical Microbiology, University of Aarhus, DK-8000 Aarhus C, Denmark.