

*Brief Communication*

RESISTANCE OF PORCINE MYCOPLASMAS TO HEAT

In a study on the sensitivity of porcine mycoplasmas to physico-chemical factors outside the host it was found (*Friis* 1973) that the resistance to desiccation was fairly low, viability being lost after a week for most strains. In the present study this work is followed up with investigations on the resistance to heat.

Strains of all the known porcine mycoplasma species, cloned 3 times on solid medium, were used. The strains were: a reference strain\* and 1 Danish isolate (M99) of *Mycoplasma hyorhinis*; the type strain\*\* (*Edward & Freundt* 1973) and 1 Danish isolate (Ms6) of *Mycoplasma suis pneumoniae*; the type strain\*\*\* of *Acholeplasma granularum*; the type strain\*\*\*\* of *Mycoplasma flocculare*; a Danish isolate (M60) of *Mycoplasma hyosynoviae*. By the growth and metabolic inhibition tests (*Friis* 1971a) Ms6 and M99 were indistinguishable from the respective type (reference) strains and M60 from the type strain (S16) of *M. hyosynoviae* (*Edward & Freundt*).

Well-growing broth (cf. *Friis* 1970, 1971b) cultures late in the logarithmic growth phase were used. In a water-bath adjusted to the temperature desired (45, 50, 55, 60, 65°C) a 10-ml plastic tube containing 1.8 ml of pure broth was placed, and 15 min. later (< 10 min. were required for the broth to reach the temperature set) 0.2 ml of a broth culture right from the 37°C incubator was cautiously deposited on the surface of the liquid; gentle shaking. The hereby resulting decrease of the temperature in the now 2.0 ml volume of fluid in the experimental tube was found to be levelled up after 1 min. at 65°C. Care being taken not to touch the inner sides of the tube, 0.2 ml of fluid was removed

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\* NCTC 10121, \*\* NCTC 10110, \*\*\* NCTC 10128, \*\*\*\* NCTC 10143, Mycoplasma Reference Laboratory, Colindale, England.

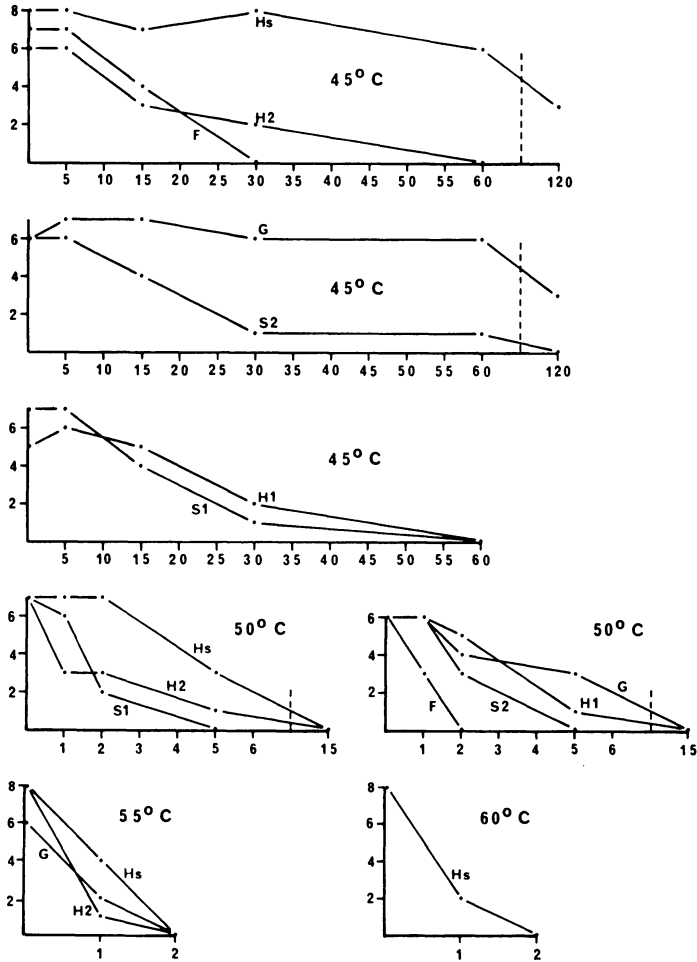


Figure 1. Resistance to heat of porcine mycoplasmas in broth. Ordinates: Endpoints of growth (log. of reciprocal) in 10-fold dilutions of mycoplasma suspensions from water bath. The starting point is a control figure from a tube on the bench. Abscisses: time in min.

H1 and H2 = *M. hyorhinis*, reference strain and M99, resp.

S1 and S2 = *M. suis*pneumoniae, type strain and Ms6, resp.

G = *A. granularum*, type strain.

F = *M. flocculare*, type strain.

Hs = M60 of *M. hyosynoviae*.

In the experiments not shown (i.e., H1, S1, S2, and F at 55°C, all strains except Hs at 60°C, and all strains at 65°C) there was complete loss of viability after 1 min.

after each of the desired intervals and cultivated in 10-fold dilutions to  $10^{-10}$ . With a similar procedure a control figure was estimated in a tube placed on the bench. The cultures were incubated in a revolving drum at 37°C and the titers read at the end of the growth period. Colorshift of the phenol red in the broth was taken as indication of growth.

The results are given in Fig. 1. It appears that most strains are inactivated after 1 min. at 55°C. *A. granularum* and especially *M. hyosynoviae* appear to be the most heat-resistant porcine mycoplasmas.

*N. F. Friis*

The State Veterinary Serum Laboratory,  
Copenhagen, Denmark.

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Reprints may be requested from: N. F. Friis, State Veterinary Serum Laboratory, Bülowsvej 27, DK-1870 Copenhagen V, Denmark.