

RESULTS OF SEROTYPING 50 DIFFERENT ISOLATES OF  
HAEMOPHILUS PLEUROPNEUMONIAE FROM SWINE HERDS IN IOWA AND SURROUNDING STATES

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Fifty isolates of H. pleuropneumoniae were selected for serotyping with a whole cell-agglutination test. The isolates were all from lungs of swine with pneumonia. The majority of the cultures were from the Veterinary Diagnostic Laboratory at Iowa State University with one to three submitted for serotyping from each of six other mid-western states.

Methods: Type cultures representing serotypes 1, 2, and 3 were obtained from the American Type Culture Collection and serotypes 4 and 5 from Dr. Anders Gunnarsson, Uppsala, Sweden.

Antigens for immunization of rabbits were prepared according to Gunnarsson et al. (1977) from mucoid cultures obtained from 18 hour cultures grown on PPLO agar plates with 5% horse serum and 10% yeast added.

Antisera was likewise prepared as described by Gunnarsson et al. (1977).

A rapid plate agglutination test was conducted using a Minnesota testing box. A small loopful (2mm) of a 6-8 hour culture grown on PPLO Agar with 5% horse serum, 10% yeast and 1% NAD was mixed with undiluted, 1:10 and 1:20 rabbit antisera against the 5 serotypes of H. pleuropneumoniae. The plate was rotated 5 times. Agglutination was usually noted within thirty seconds but was recorded at three minutes.

Results: Serotyping of 50 isolates of H. pleuropneumoniae from pneumonic swine lungs revealed two serotypes (1 and 3) not previously reported from the United States. Gunnarsson et al. (1977) reported that of 6 isolates examined from the United States, five were serotype 5 and one belonged to serotype 4.

In the present study, serotyping by the plate agglutination method revealed 3 serotypes. Serotype 5 was predominant (54%) in the 50 cultures. Twenty-six percent were serotype 1, six percent were serotype 3 and fourteen percent were not typable. Serotypes 2 and 4 were not found among the 50 cultures typed.

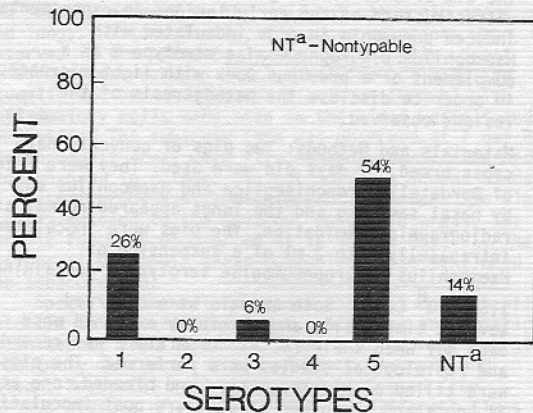


Figure 1: Serotypes of 50 Different Isolates of H. pleuropneumoniae from Swine Herds in Iowa and Surrounding States.

Conclusions: Failure of the agglutination test to type strains is not uncommon with H. pleuropneumoniae. Rough and smooth forms of H. pleuropneumoniae which have lost ability to form all or part of their capsular material renders them untypable. However, the nontypable strains may also represent new unrecognized serotypes.

The importance of serotype specificity must be recognized. Experience with the complement fixation test has shown that cross-reactions between serotypes generally do not occur with that particular serological test (Nicolet, 1971, Nielsen, 1979, Gunnarsson, 1980). Therefore, a mixture of the five known serotypes must be used for routine serological diagnosis in countries such as the United States where more than one serotype is present.

Serotyping is also important in epidemiological studies as well as in development of vaccines especially in those countries where more than one serotype occurs.

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