Research project IZS VE 15/10

Mycoplasma spp. in poultry industry: evaluation and implementation of new diagnostic tools for strains differentiation in different rearing categories

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Mycoplasmas are small prokaryotes without cell walls. Their growth *in vitro* is very fastidious because of the lack of biosynthetic genes. *Mycoplasma spp.* are capable of infecting a wide range of hosts including plants and animals and can be responsible for important economic losses especially in poultry industry. At least 25 mycoplasmas have so far been isolated from birds but only four species are considered significant because of their impact on poultry production namely *Mycoplasma gallisepticum* (MG), *Mycoplasma synoviae* (MS), *Mycoplasma meleagridis* (MM) and *Mycoplasma iowae* (MI). Today prevention of mycoplasmosis is based mainly on acquiring breeding stock which is free of these pathogens and the implementation of biosecurity measures to avoid their introduction to the farm. Unfortunately because of the lack of epidemiological knowledge, these containment procedures are not always successful in preventing spread of mycoplasma infection within the poultry industry.

Molecular biological techniques are able to differentiate accurately between strains and if combined with epidemiological approaches may help in the understanding of avian mycoplasmosis. The aim of this study is to investigate by cultural and biomolecular methods the presence of mycoplasma in all the important sectors of a selected region of the poultry industry in Northern Italy including different breeding species (broiler, turkey and layers) which share the same epidemiological area and to evaluate the rapid diagnostic tools capable of differentiating vaccine and field strains.