

Participation of *Mollicutes* microorganisms in the respiratory disease of calves from family farming dairy herds in the state of São Paulo, Brazil

Natália Carrillo Gaeta^[a], Bruno Leonardo Mendonça Ribeiro^[a], Mário Augusto Reyes Alemán^[a], Eduardo Carvalho Marques^[a], Eidi Yoshihara^[b], Jorge Timenetsky^[c], Lilian Gregory^[a]

^[a] Departamento de Clínica Médica, Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo (USP), São Paulo, SP, Brazil

^[b] Agência Paulista de Tecnologia dos Agronegócios, Departamento de Descentralização do Desenvolvimento, Polo Regional de Desenvolvimento Tecnológico dos Agronegócios da Alta Sorocabana, Presidente Prudente, SP, Brazil

^[c] Laboratório de Micoplasmas, Departamento de Microbiologia, Instituto de Ciências Biomédicas, Universidade de São Paulo (USP), São Paulo, SP, Brazil

* Corresponding author
e-mail: natalia.gaeta@hotmail.com

Abstract

Bovine respiratory disease (BRD) is considered the major cause of economic losses in dairy cattle production. *M. bovis*, *M. mycoides* subsp. *mycoides* SC, and *M. dispar* are important pathogens of BRD. This study aimed to determine the importance of *Mollicutes* microorganisms in BRD of calves from Brazilian family farming herds in association to clinical signs of BRD. Hundred and forty-one mongrel dairy calves aged from one to twelve months were randomly selected from 42 family farm dairy herds from Pontal do Paranapanema, Brazil. Physical examination was performed in all calves that were classified as healthy (n = 100) and BRD (n = 41). Tracheobronchial fluid samples were collected and isolation and molecular detection of *M. dispar*, *M. bovis* and *M. mycoides* subsp. *mycoides* were performed. The association between microorganisms and clinical signs of BRD was evaluated. Data were analyzed by Pearson's chi-square test or Fisher's exact test in the form of univariate analysis. Variables with $P < 0.05$ were considered significant. Variables with $0.05 < P < 0.07$ were considered statistically tendencies. *Mollicutes* micro-organisms were isolated in 7.1% (10/141) of samples. *M. dispar* colonies were detected in the tracheobronchial fluid from both healthy (1.0%; 01/99) and BRD (2.4%; 1/42) calves. PCR test was also applied in samples and *Mollicutes* micro-organisms were detected in 20.6% (29/141) samples. *M. dispar* was detected in both healthy (1.0%; 01/99) and BRD (4.8%; 02/42) samples. *M. bovis* and *M. mycoides* subsp. *mycoides* SC were not detected or isolated. The highest frequency of *Mollicutes* micro-organisms in colonies and samples did not have the species identified by the

primers used in this research. *Mollicutes* micro-organisms were associated with purulent/mucopurulent nasal discharge ($P = 0.017$ / OR: 3.325; CI =1.192-9.274). Statistical tendencies were observed to *M. dispar* and tachypnea ($P = 0.066$ / OR: 11.579; CI = 1.000-134.093). *Mycoplasma mycoides* subsp. *mycoides* SC was not detected in the present research and this result is in agreement with other Brazilian studies. The results suggest the potential role of other mycoplasmas besides *M. bovis*, *Mycoplasma mycoides* subsp. *mycoides* SC and *M. dispar* in the development of BRD. *U. diversum*, *M. bovirhinis*, *Acholeplasma* spp., *M. alkalensis* and *M. arginini* were other species that have been described in the respiratory tract of calves. Some studies also referred the association between *Mollicutes* micro-organisms and *M. dispar* and clinical signs of BRD. The data confirms the importance of BRD in Brazilian family farming. Moreover, the new information regarding to the associations between microorganisms and clinical signs of BRD contributes to the presumptive diagnosis of the bacteria involved in BRD.