

**TITLE:** MOLECULAR CHARACTERIZATION OF *Streptococcus uberis* STRAINS ISOLATED FROM BOVINE MASTITIS IN DAIRY HERDS FROM SOUTH MINAS GERAIS STATE

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**ABSTRACT:**

Mastitis is one of the most common and costly infectious diseases in dairy cattle worldwide. This is a multifactorial illness caused by different microorganisms, including virus, yeasts, algae, parasites, and several species of bacteria. Among these bacteria, *Streptococcus uberis* is an important environmental pathogen that is responsible for a large range of clinical and subclinical mammary infections, especially in intensively managed herds. Despite the increasing importance of this pathogen in the etiology of bovine mastitis, data on its virulence and diversity in Brazilian dairy herds are scarce. The aims of the present study were to investigate the virulence characteristics of *S. uberis* isolated from bovine mastitis and to assess the molecular epidemiology of the Brazilian isolates using pulsed-field gel electrophoresis (PFGE). In this work, 46 strains of *S. uberis* isolated from bovine mastitis from 26 Brazilian dairy herds were evaluated regarding their genetic diversity by PFGE using with the *SmaI* enzyme. Additionally, the presence of the virulence genes *skc* and *pauA*, which encode plasminogen activators, and the gene *sua*, which encodes an adhesion molecule in mammary epithelial cells, were assessed by PCR. Our results showed a high genetic diversity in the population, displaying 35 different patterns in the PFGE. A high proportion of strains was positive for virulence genes in the sampled population (*sua* [100%], *pauA* [91%], and *skc* [91%]). The high frequency of *skc*, *pauA*, and *sua* genes among the studied strains suggests the importance of these virulence factors, possibly helping *S. uberis* in the colonization of the bovine mammary gland. Surveys of the genetic and molecular characteristics of this pathogen can improve our knowledge of bacterial activity and identify molecules that have roles in the establishment of the infection. This might help in the development of more effective measures to control and prevent bovine mastitis.

**Keywords:** bovine diseases; environmental *Streptococci*; intramammary infections; PFGE; *Streptococci* virulence.

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