

Collection of Microorganisms of Interest of the Dairy Industry

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Abstract:

Microorganisms have a significant impact in food animal production, by affecting positively or negatively the productivity and the manufacture of their products. The organization and maintenance of collections of these microorganisms may be an important source of genetic material for studies related to animal pathogens, human pathogens that can be transmitted by animal (zoonoses) or by animal products (foodborne diseases) and microorganisms that can be used as additives and for preservation of animal products and feed. The collection of microorganisms of interest to the dairy industry was initiated in 1993 at Embrapa Dairy Cattle, Juiz de Fora, MG. The isolates preserved in the collection include: (1) 2,400 strains of animal pathogens isolated from bovine and water buffaloes intramammary infections, (2) 470 strains of foodborne pathogens isolated from milk and cheese, (3) 300 strains of psychrotrophic microorganisms isolated from refrigerated milk and (4) microorganisms isolated from rumen and from animal feed. The organisms from bovine and buffaloes intramammary infection include: *Staphylococcus aureus*, coagulase-negative staphylococci, *Streptococcus agalactiae*, *Streptococcus uberis* and other species of streptococci, *Enterococcus* spp., *Arcanobacterium pyogenes*, Gram-negative bacteria such as coliforms and *Pseudomonas* spp. The foodborne pathogens include *Staphylococcus aureus*, *Listeria monocytogenes* and *Salmonella*. The main psychrotrophic microorganisms are species of *Acinetobacter*, *Aeromonas*, *Klebsiella*, *Pseudomonas* and *Bacillus*. Microorganisms isolated from rumen and dairy cow feed include *Butyrivibrio fibrisolvens* and *Streptococcus infantarius*. Presently, a total of 3,300 strains of microorganisms are preserved frozen at -20°C and -80°C and the collection has been enriched by the introduction of new isolates. The microorganisms have been characterized by phenotypic and molecular tests to obtain information such as their potential virulence for animals, diversity and epidemiologic studies. The importance of this collection extends from animal to public health with potential application to prevention of animal and foodborne diseases, traceability of foodborne pathogens, prevention of food spoilage and application on food processing. Financial support: EMBRAPA.

Key words: Animal pathogens, Culture collection, Dairy spoilage microorganisms, Foodborne pathogens, Rumen microorganisms