OCCURRENCE OF SPORE FORMING BACTERIA IN COWS' FEED AND RAW MILK

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INTRODUCTION

One of the factors contributing to dairy product loss and reduced quality is the spoilage of raw milk by spore forming bacteria. Milk is subjected to this contamination from cows' environment int.al. different animal feeding stuffs.

The objective of the current study was to investigate the incidence of spore forming bacteria from the genera *Clostridium* and *Bacillus* in feed and raw milk samples.

MATERIAL AND METHODS

In total, 47 animal feed samples and 134 bulk tank milk samples were investigated.

Bacteriological and mycological examination was carried out at the Laboratory of Microbiology in the Research Institute of Biotechnology and Veterinary Medicine “Sigra”.

Plating was done on Blood agar, Baird-Parker agar, MacConkey agar, Listeria selective agar, Sabouraud Dextrose agar and other selective media.

Microorganisms were further identified using Gram-positive and Gram - negative kits of BBL CRYSTAL Identification System.

RESULTS

Spore forming microorganisms from the genus *Bacillus* were isolated from 58.8 % (n=17) fodder, 80.0 % (n=10) silage, 77.8 % (n=9) hay and haylage, and 58.3 % (n=11) grain, grass and brewer's grain samples (Fig.1). Spore forming microorganisms from the genus *Clostridium* were isolated from the feed samples in similar degree as *Bacillus* spp. (Fig.2). *Clostridium* spp. were isolated from 78.7 %, (n=47) feed and 42.9 % (n=134) milk samples, but *Bacillus spp*. were isolated from 61.7% feed and 27.6% milk samples (Fig.3). Proportion of spores and vegetative cells in the analysed feed samples are shown in Fig.4 and Fig.5.

Fig.1. Incidence of *Bacillus spp*. in the analysed feed samples

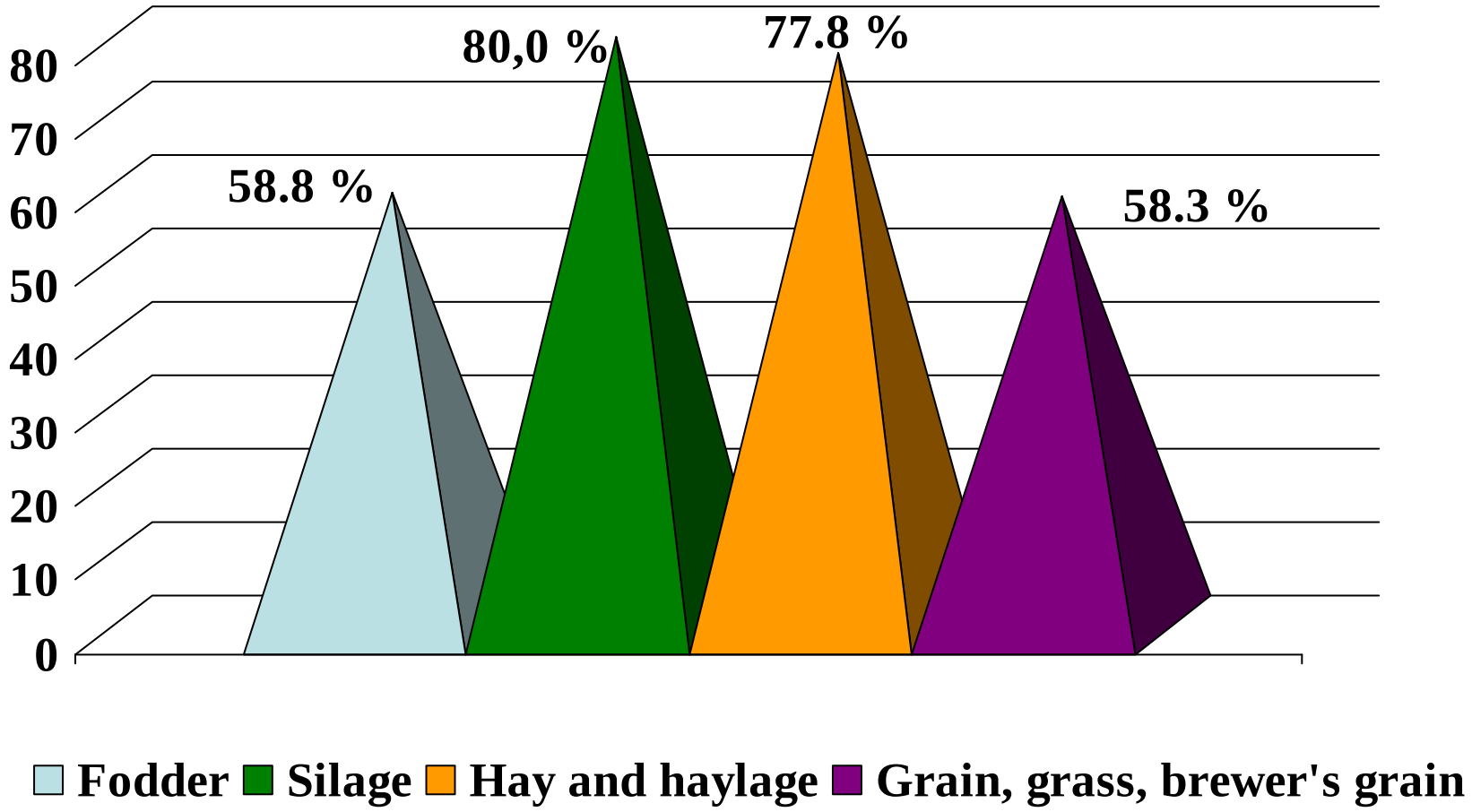


Fig.2. Incidence of *Clostridium spp*. in the analysed feed samples

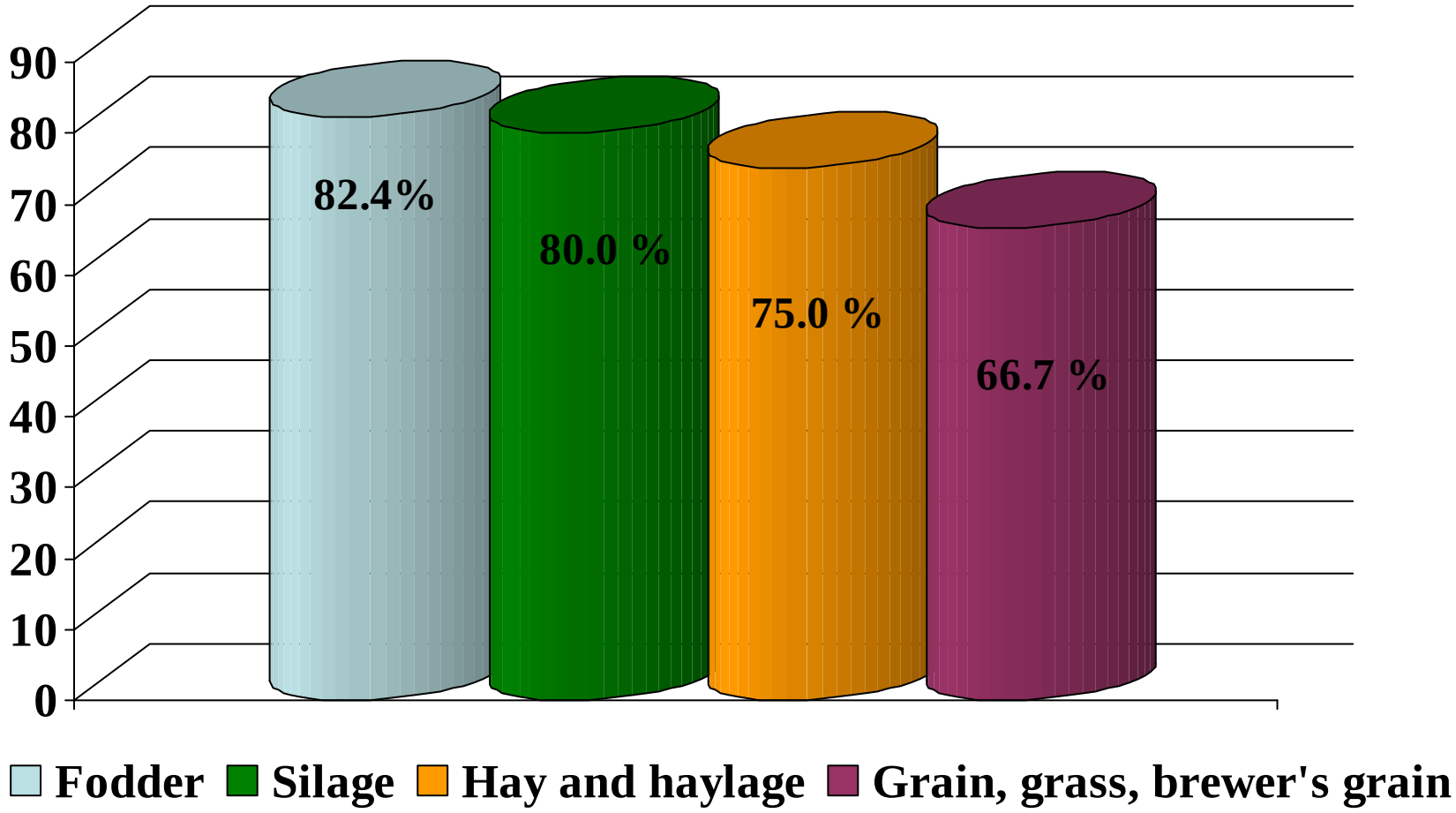


Fig.3. Occurrence of *Bacillus spp.* and *Clostridium spp.* in the analysed feed and milk samples (n=47; n=134)

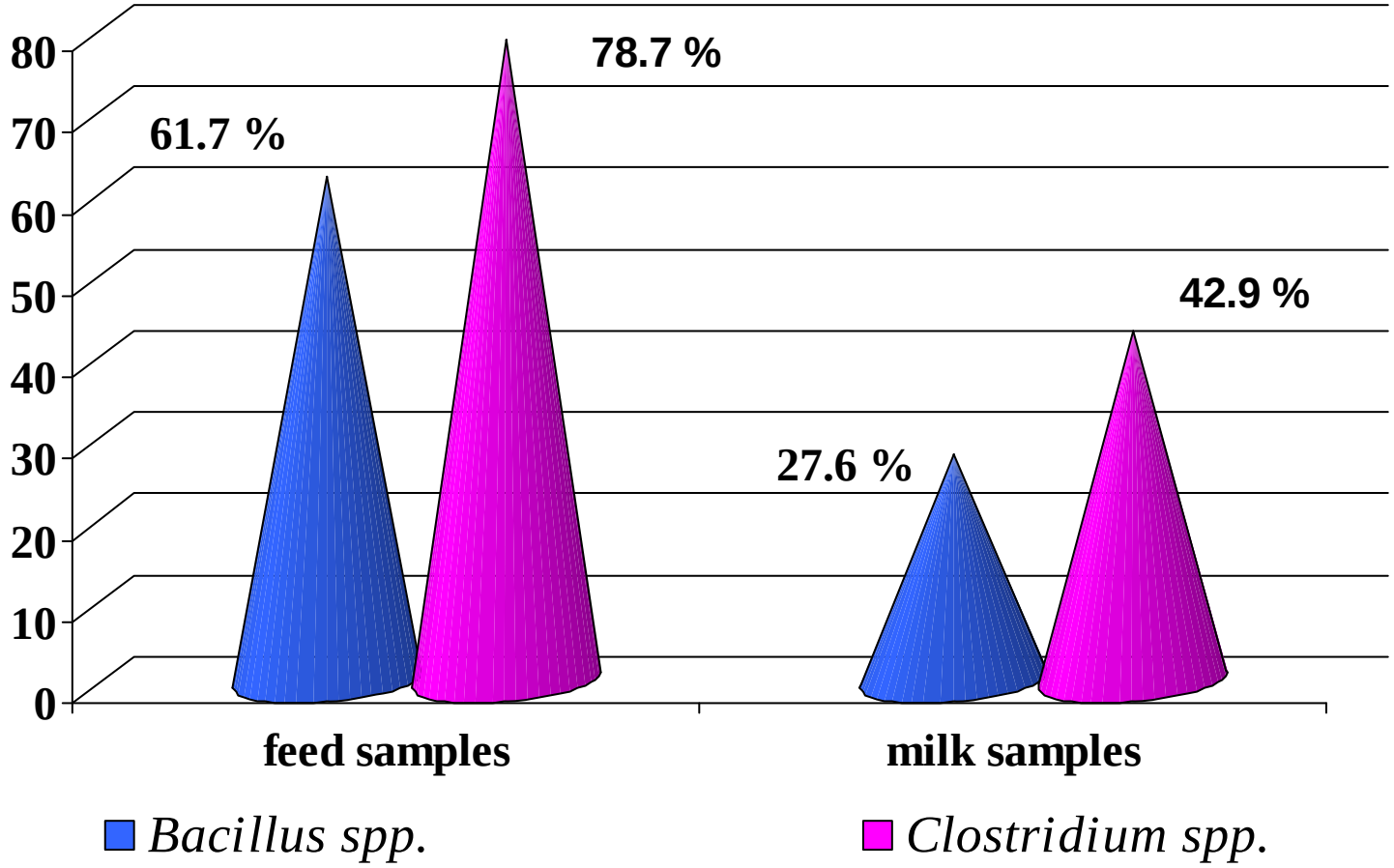


Fig.4. Proportion of spores and vegetative cells of *Clostridium spp*. in the analysed feed samples (n=47)

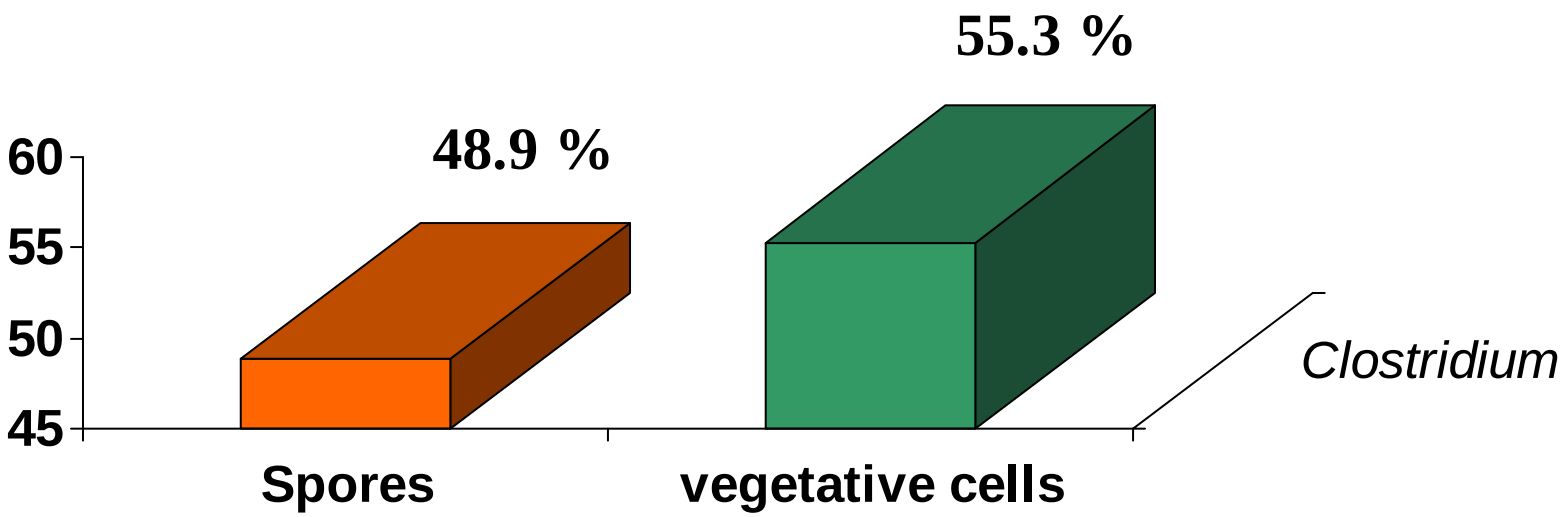
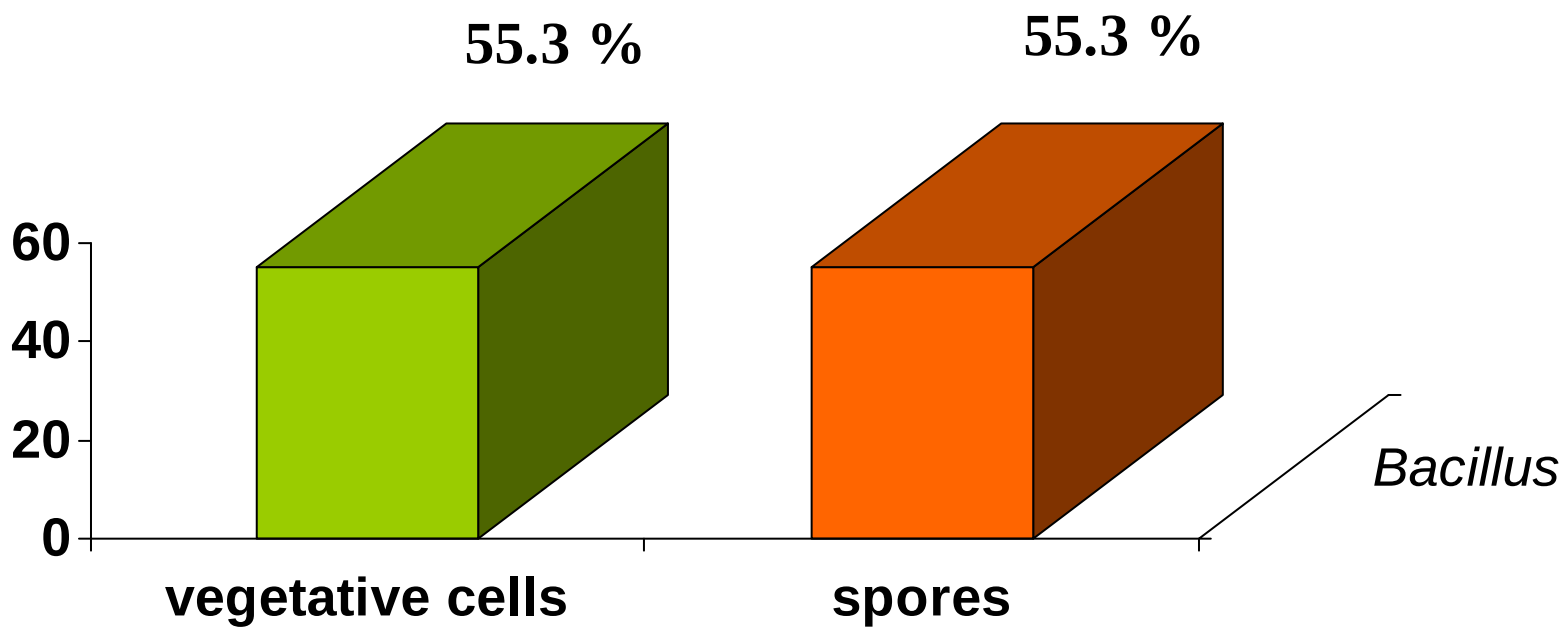


Fig.5. Proportion of spores and vegetative cells of *Bacillus spp*. in the analysed feed samples (n=47)



CONCLUSIONS

The acquired results show that feed and raw milk is contaminated with vegetative cells and spores of bacteria from the genera *Clostridium* and *Bacillus*. It is the risk factor for qualitative milk products obtaining in dairy farms.