ADDING MICROBIAL INOCULANTS IMPROVED MICROBIOLOGICAL QUALITY OF SUNFLOWER SILAGE (*Helianthus annuus*).

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Abstract:

The use of silage for feeding animals is one of the alternatives that stands in dry season, where forage production is not enough. The use of sunflower as forage becomes viable due to its high nutritional value especially protein and energy. In the ensiling process may occur the growth of undesirable microorganisms that produce toxins, reduce the nutritional value and dry matter. Aiming to reduce these problems, the objective of this study was to evaluate the use of microbial inoculants in sunflower silage.It was used 30 experimental silos in a completely randomized design. The experimental treatments were: 1- Control (no addition of the inoculants on silage); LB 2- (*Lactobacillus buchneri* $2.6x10^{10}$ CFU / g); 3- BSLB ($1.0x10^{9}$*Bacillus subtilis* CFU / g *Lactobacillus buchneri* + $9.0x10^{9}$ CFU / g). It was used 2 g of inoculant per ton of silage fresh matter. The silos were opened after 60 days of fermentation. The samples were collected, being taken from various parts of the silos.It was used 10 grams of each sample to 90 ml of sterile saline for serial dilution of 10-1 till 10-6 in test tubes. Quantification of microorganisms were done in triplicate for each dilution and the culture medium, by using the MRS agar (de Man, Rogosa and Sharpe) for enumeration of lactic acid bacteria, nutrient agar for the total count of aerobic and anaerobic bacteria, these incubation with at 37 ° C for 48 hours; for yeast and mold count the Agar PDA (Potato dextrose agar) with incubation at 26 ° C for 120 hours. Means were transformed to log10. Statistical analyzes were performed using PROC MIXED of SAS statistical package.No differences were observed between experimental treatments to count total bacteria and anaerobic bacteria. The silage inoculated with BSLB had higher counts of lactic acid bacteria and lower for control. For aerobic bacteria control showed higher score compared to LB and BSLB treatments. To the yeasts and molds silage inoculated with LB showed lower score than the control and the BSLB. The addition of microbial inoculants on silage process improves considerably the microbiological quality of sunflower silage.

Keywords: *Bacillus subtilis,* ensiling, sunflower, *Lactobacillus buchneri*

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