

INFLUENCE OF *Lactobacillus buchneri* OR BOTH *L. buchneri* AND *Bacillus subtilis* INOCULATION ON MICROBIOLOGY OF SUNFLOWER (*Helianthus annuus*) SILAGE.

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The presence of microorganisms and anaerobiosis is required as an adequate moisture and carbohydrate content during the ensiling process. The aim of this study was to determine the microbial population of sunflower silage (BRS 321 genotype) treated with inoculant. Sixty mini-silos were used in a completely randomized design consisting of three treatments: 1-Control (without inoculant); 2-BSLB (*Bacillus subtilis* 1×10^9 CFU/g + *Lactobacillus buchneri* 9×10^9 CFU/g) and 3-LB (*Lactobacillus buchneri* 2.6×10^{10} CFU/g). Bacterial inoculants were used at a dosage of 2 g/t of fresh matter. Five mini-silos of each treatment were opened on days 15, 30, 45 and 60 after the ensiling and samples (0.2 kg) were collected from different sites of silos and homogenized to form a composite sample. Subsamples of 10 g of each treatment were diluted in 90 mL of sterilized sodium chloride solution (0.9%) and a serial dilution was performed from 10^{-1} until 10^{-6} in test tubes. The microorganism counting was performed in triplicate from each dilution using culture medium of MRS agar to lactic-acid bacteria, nutrient agar to aerobic and anaerobic bacteria (48 h of incubation at 37°C) and agar PDA (potato dextrose agar, 120h of incubation at 26°C) for mold and yeast. Data were submitted to analysis of variance and analyzed as repeated measures using the PROC MIXED (SAS, 2004). The total bacteria and anaerobic bacteria showed quadratic response, with a maximum concentration occurring at day 15 of ensiling, and minimum concentration occurring at day 45 of ensiling. The highest concentration of aerobic bacteria ($6 \text{ cfu g}^{-1} \log_{10}$) was found in control treatment after 60 days of ensiling. The inoculants reduced the aerobic bacteria concentration on days 45 and 60 of ensiling. The application of inoculants increased the lactic acid bacteria concentration in sunflower silage in which the highest value was observed after 60 days of ensiling. BSLB reduced the concentration of fungi and yeast, except on day 60 after ensiling in which the only LB showed lower concentration in relation Control. Fungi and yeast concentration decreased according to the period of ensiling, and the lowest values were observed in silage treated with inoculants. The BSLB positively influenced the microbial population of silage, which should be used from 42 days after ensiling.

Palavras-chaves: Aerobic bactéria. Fungi. Homofermentative

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