

Effects of Bacterial Inoculants and Enzymes Inoculation on the Fermentation and Aerobic Stability of Potato Hash Silage

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Abstract : Potato hash (PH), a by-product from food production industry, contains 188.4 g dry matter (DM)/kg and 3.4 g water soluble carbohydrate (WSC)/kg DM, and was mixed with wheat bran (70:30 as is basis) to provide 352 g DM/kg and 315 g WSC/kg DM. The materials were ensiled with or without silage additives in 1.5L anaerobic jars (3 jars/treatment) that were kept at 25-280 C for 3 months. Four types of silages were produced which were: control (no additive, denoted as T1), celluclast enzyme (denoted as T2), emsilage bacterial inoculant (denoted as T3) and silosolve bacterial inoculant (denoted as T4). Three jars per treatment were opened after 3 months of ensiling for the determination of nutritive values, fermentation characteristics and aerobic stability. Aerobic stability was done by exposing silage samples to air for 5 days. The addition of enzyme (T2) was reduced ($P < 0.05$) silage pH, fiber fractions (NDF and ADF) while increasing ($P < 0.05$) residual WSC and lactic acid (LA) production, compared to other treatments. Silage produced had pH of < 4.0 , indications of well-preserved silage. Bacterial inoculation (T3 and T4) improved ($P < 0.05$) aerobic stability of the silage, as indicated by increased number of hours and lower CO₂ production, compared to other treatments. However, the aerobic stability of silage was worsen ($P < 0.05$) with the addition of an enzyme (T2). Further work to elucidate these effects on nutrient digestion and growth performance on ruminants fed the silage is needed.

Keywords : by-products, digestibility, feeds, inoculation, ruminants, silage

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