THE QUALITY INDICES OF FRESH BIOMASS AND SILAGE FROM DENT CORN (*Zea mays* var. *indentata*) AND SWEET CORN (*Zea mays* convar. *saccharata*) IN MOLDOVA

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Abstract. *This article presents the results of an evaluation of the biochemical composition and nutritive value of fresh biomass (green mass) and silage from dent corn (Zea mays* var. *indentata) hybrid 'Porumbeni 374' and sweet corn (Zea mays* convar. *saccharata) hybrid 'Porumbeni 343', grown in the central part of the Republic of Moldova. The quality indices of the dry matter from the whole corn plants ranged between the following values: 8.4-12.7% CP, 5.2-12.5% ash, 24.8-33.6% CF, 27.1-34.7% ADF, 47.4-53.9% NDF, 3.8-4.8% ADL, 22.3-30.9% Cel, 19.2-20.3% HC, with 619-678 g/kg DDM, RFV=107-133, 10.02-10.90 MJ/kg ME, and 6.04-6.91 MJ/kg NEl. The prepared corn silage had a pH of 3.74–3.77, and contained 10.3-13.3 g/kg acetic acid, 38.1-39.7 g/kg lactic acid and 0.02 g/kg butyric acid. The silage dry matter nutrients were 8.0-9.6% CP, 5.9-9.3% ash, 25.8-34.0% CF, 25.8-34.0% ADF, 46.9-53.0% NDF, 3.1-3.6% ADL, 22.1-30.9% Cel, 19.0-21.1% HC, with 624-688 g/kg DDM, RFV=110-136, 10.10-11.04 MJ/kg ME, and 6.12-7.06. MJ/kg NEl.*

Keywords*: corn hybrids, quality indices, green mass, silage, dent corn hybrid 'Porumbeni 374', sweet corn hybrid 'Porumbeni 343'*

INTRODUCTION

Zea mays L., commonly known as maize or corn, is an annual, monocotyledonous herb of the family Poaceae (the grass family). It is monoecious – bearing separate male and female flowers on the same plant – and uses the C4 photosynthetic pathway. Maize is native to the Americas but has expanded over time and is now cultivated widely, occurring in the Northern Hemisphere up to about 58°N (e.g., Canada and Russia) and in the Southern Hemisphere to about 42–43°S (e.g., New Zealand). Corn is a vital food, feed, and industrial crop globally, grown in roughly 160 countries with diverse soils, climates, biodiversity, and management systems. It ranks as the third most important cereal crop after rice and wheat and contributes significantly to global grain production for human and animal consumption, forage production, and various industrial applications.

Due to its genetic diversity and the morphological characteristics of its endosperm, maize exhibits several distinct types, each with specific properties that make it suitable for particular uses. These range from dent corn (*Zea mays* var. *indentata*), primarily cultivated for animal feed, to types used predominantly for human consumption, such as flint corn (*Zea mays* var. *indurata*), sweet corn (*Zea mays* var. *saccharata*), popcorn (*Zea mays* var. *everta*), and pod corn (*Zea mays* var. *tunicata*). Industrial applications commonly rely on waxy corn (*Zea mays* var. *ceratina*) and flour corn (*Zea mays* var. *amylacea*).

Globally, the largest cultivated areas are planted with hybrids and varieties of dent corn (*Zea mays* var. *indentata*), which is used mainly for grain production but also serves as an important fodder crop for fresh forage and silage.

Sweet corn (*Zea mays* var. *saccharata*) is a highly valued corn type cultivated worldwide for its tender kernels consumed as a vegetable. Global demand for sweet corn has increased steadily over the past two decades, driven by shifting dietary preferences, urbanization, and growing health awareness. These trends have intensified research efforts in breeding, agronomy, and improving the crop's adaptability to a wide range of agro-climatic conditions. In addition, several research centers are investigating the use of residues from sweet corn cultivation and industrial cob processing as potential sources of animal feed and energy biomass (IDRIS et al. 2000; CHEVA-ISARAKUL et al. 2001; MUSTAFA et al. 2004; IDIKUT et al. 2010; PANYASAK & TUMWASORN, 2014; CHAUDHARY et al. 2016; NAZLI et al. 2018; ZHANG et al. 2022; NASIR & KAMARUDDIN, 2023).

Whole-plant corn forage is an important source of fiber and energy and is widely used in the nutrition of ruminant animals to enhance production performance, dry matter intake, average daily gain, and milk yield. It provides substantial amounts of energy-rich fodder for animal diets, and, unlike sorghum species, can be safely fed at all growth stages without the risk of oxalic or prussic acid toxicity.

The main objective of this study was to evaluate the chemical composition and nutritive value of whole-plant forages from the dent corn hybrid 'Porumbeni 374' and the sweet corn hybrid 'Porumbeni 343' grown under the environmental conditions of the central region of the Republic of Moldova.

MATERIALS AND METHODS

The local dent corn (*Zea mays* var. *indentata)* hybrid '*Porumbeni* 374' and sweet corn (*Zea mays* convar. *saccharata* var. *rugose)* hybrid *'Porumbeni 343'*, both developed at the Institute of Crop Science "Porumbeni" and registered in Catalog of Plants Varieties in the Republic of Moldova, were the subjects of this research.

The corn hybrids studied were sown in May at a density of 60,000 seeds per hectare, with a row spacing of 70 cm. All agronomic practices during the growing season were identical for both hybrids. The dent corn whole plants were harvested manually at the kernel wax stage, while sweet corn plants were collected at the technological maturity stage, after the ears of sweet corn (fruit corn) at the milk stage had been harvested for human consumption. The harvested plants were chopped into 1.5–2.0 cm pieces using a laboratory forage chopper. Dry matter content was determined by drying samples to a constant weight at 105°C. The silage was prepared from the chopped green mass, compressed into well-sealed glass containers, and stored at ambient temperature (18–20°C). After 45 days, the containers were opened, and the sensory and fermentation indices of the preserved forage were assessed according to standard laboratory procedures outlined in the Moldavian standard SM 108*. The fresh biomass and fermented fodder samples were dehydrated in an oven with forced ventilation at 60°C. After dehydration, the biological material was finely ground in a laboratory ball mill. The quality of the forage was evaluated by analyzing indices such as crude protein (CP), crude fiber (CF), crude ash (CA), acid detergent fiber (ADF), neutral detergent fiber (NDF), and acid detergent lignin (ADL), which were determined using near-infrared spectroscopy (NIRS) with the PERTEN DA 7200, at the Research and Development Institute for Grassland, Brașov, Romania. The concentrations of hemicellulose (HC), cellulose (Cel), digestible dry matter (DDM), digestible energy (DE), metabolizable energy (ME), net energy for lactation (NEl), and relative feed value (RFV) were calculated according to standard procedures. The evaluation of silage pH, and the concentrations of organic acids (lactic, acetic, and butyric) in both free and bound forms, was carried out at the Laboratory of Nutrition and Forage Technology of the Scientific-Practical Institute of Biotechnology in Animal Husbandry and Veterinary Medicine, Maximovca, in accordance with established methodological guidelines.

RESULTS AND DISCUSSION

The bio-morphological characteristics of the whole corn plant had a significant impact on productivity, fodder quality, and forage value. It was found that the dent corn hybrid '*Porumbeni 374'* reached a height of 249–252 cm at harvest, with a dry matter yield of 1.8 kg/m², while the plant height of the sweet corn hybrid *'Porumbeni 343'* was lower, ranging from 175 to 193 cm, with a dry matter yield of

0.92 kg/m² from the plant after ear removal.

Multiple studies have provided data on the corn forage productivity. SUTHAR et al. (2012) revealed that yield of sweet corn varieties was 8.64-12.66 t/ha green cobs and 15.91-26.54t/ha green fodder. NAZLI et al. (2018) mentioned that sweet corn plant in milk kernel stage had 208.7 cm height, and dry matter yield was 2.28 t/ha leaves, 4.26 t/ha stems, 0.38 t/ha tassels and 10.6 t/ha cobs. SCARLAT et al. (2019) remarked that corn forage yield varied from 12.65 to 20.99 t/ha dry matter. COȘMAN & COȘMAN (2023) found that yield of studied corn hybrids varied from 16.44 to 22.36 t/ha dry matter. KINTL et al. (2023) reported that in Czech Republic the fresh matter yield of *Zea mays* crop was 61.34 t/ha with 26.9% dry matter content.

Analyzing the nutrient concentrations of the green fodder from the studied corn hybrids (Table 1), the biochemical composition of the dry matter was found to be: 8.4-12.7% CP, 5.2-12.5% ash, 24.8-33.6% CF, 27.1-34.7% ADF, 47.4-53.9% NDF, 3.8-4.8% ADL, 22.3-30.9% Cel, 19.2-20.3% HC. The dry matter of sweet corn hybrid *'Porumbeni 343'* was characterized by a higher content of crude protein, minerals, and fibers, whereas the dent corn hybrid '*Porumbeni 374*' had lower concentrations of crude protein, minerals, and cellulose, but higher levels of acid detergent lignin and hemicellulose, which affected its digestibility and energy value. The green fodder from dent corn hybrid '*Porumbeni 374*' was characterized by a higher relative feed value and concentrations of metabolizable energy and net energy for lactation.

Different results regarding the biochemical composition and the nutritive value of the corn fresh biomass are given in the specialized literature. According to IDRIS et al. (2000) at the normal harvesting age of 75 days, the protein and metabolizable energy concentration of corn stover were 9.6% and 7.82 MJ/kg. CHEVA-ISARAKUL et al. (2001) found that residue of sweet corn cannery contained 197.5 g/g DM with nutrient composition 6.86% CP, 3.21% EE, 3.97% ash, 70.89% NDF, 35.61%ADF and 15.07% NFC. MUSTAFA et al. (2004) reported that sweet corn stover had 239 g/kg DM, 58.2%NDF, 28.3% ADF and 3.4%CP. DALE et al. (2011) reported that the nutrient content of dry matter from corn stalks and leaves ranged from 3.79 to 7.97 % CP, 38.94-46.46 % CF, 45.51-56.22% ADF, 72.48-79.66% NDF, 6.14 -9.89% ADL. In contrast, the nutrient content of corn ear mass ranged from 2.51 to 5.83 % CP, 6.93-12.94 % CF, 2.48-16.81% ADF, 18.11-35.43% NDF, 0.51-4.13% ADL. SUTHAR et al. (2012) mentioned that the dry matter of green fodder from the studied sweet corn varieties contained 4.73-4.97 % CP and 87.9-90.8 % TDN. FERREIRA et al. (2013) found that the forage quality of corn hybrid plants without ears was 5.08-7.14 % CP, 3.40-8.23 % WSC, 33.29-42.09% ADF, 64.88-74.55% NDF, 3.38 -7.20% ADL with 41.58-58.84% IVDMD. PANYASAK & TUMWASORN (2014) remarked that the chemical characteristics of sweet corn waste were characterized by the following indices: 155.6 g/kg DM, 7.54% CP, 0.93% EE, 3.14% ash, 32.77% CF, 78.98% NDF, 43.87% ADF, 7.96 % ADL and 55.62% NFE with a gross energy of 3,983.41 cal/g. CHAUDHARY et al. (2016) mentioned that sweet corn forage had 375.0 g/kg DM, 6.45% CP, 40.50% CF, 81.50% NDF, 49.95% ADF, 5.00% ADL, 5.19% ash and 53.65% IVDOM, but forage corn had 230.0 g/kg DM, 9.63% CP, 30.0% CF, 67.80% NDF, 37.60% ADF, 3.40% ADL, 6.10% ash and 66.25% IVDOM. CARPICI et al. (2017) reported that the forage quality of second-crop maize varied depending on plant density and nitrogen fertilization rate. Thus, it ranged from 4.7 to 7.9% CP, 20.2-27.7% ADF, 39.6-50.6%. SCARLAT et al. (2019) revealed that, depending on the hybrids, plant density and row distance, the corn forage quality were: 8.37-10.25% CP, 24.93-27.93% ADF, 35.32-40.23% NDF, RFV=155.7-182.7. NAZLI et al. (2018) remarked that the nutritional quality indicators of sweet corn forage were: 10.7-11.7% CP, 60.0-66.2% NDF, 26.5-44.1% ADF, 5.49-6.35% lignin, 22.1-38.7% HC, 546-650 g/kg DDM, 567-668 g/kg TDN, 10.5-12.3 MJ/kg DE, 8.58-10.13 MJ/kg ME, but the forage from grain corn – 9.6-11.8% CP, 63.5-65.2% NDF, 31.3-43.0% ADF, 7.08-7.66% lignin, 21.8-32.2% HC, 551-645 g/kg DDM, 571-641g/kg TDN, 10.5-11.8 MJ/kg DE, 8.56-9.71 MJ/kg ME, respectively. COȘMAN & COȘMAN (2023) found that studied corn hybrids contained 307.3-345.0 g/kg DM, 6.68-8.01% CP, 15.11-19.55% CF, 65.44-69.69%NFE, 0.79-2.30% sugars, 31.27-28.61% starch, 3.50-4.10% EE, 3.47-3.90% ash, 1.7-2.8 g/kg Ca, 2.1-2.9 g/kg P, 9.53-9.93 MJ/kg ME. NASIR & KAMARUDDIN (2023) reported that the leaves of sweet corn contained 19.04% CP, 5.22% EE, 27.05% CF, 43.55% NFE, 5.44% ash, and sweet corn stalk had 10.47% CP, 1.32% EE, 23.88 % CF, 51.42% NFE and 4.56% ash and 27.05 % CF, while kernel corn leaves 15.41% CP, 2.79%EE, 25.83% CF, 46.64% NFE, 5.22% ash and stalk -4.09% CP, 0.47% EE, 27.23% CF, 60.99% NFE, 2.67% ash. DYK (2025) found that sweet corn waste contained 193.1-298.5 g/kg DM, 6.90-11.70% CP, 13.47-24.26% NFC, 55.27-67.40%NDF, 3.57-5.77% EE, 3.83-12.37% ash, 0.5-2.5 g/kg Ca, 0.7-3.0 g/kg P, 637.4-787.0 g/kg TDN, RFQ=131-189, 1.08- 1.39 Mcal/lb ME, 0.65-0.82 Mcal/lb NEl. Silage is a method of preserving forage through fermentation in an anaerobic environment. It is a preferred method of feed storage for energy-dense crops. Corn silage is an important feed source for dairy cattle in recent years, being a key component of the balanced feeding rations for farm animals throughout the year.

Table 1.

The biochemical composition and nutritional value of fresh biomass from the studied corn hybrids

Indices	*'Porumbeni 374'*	*'Porumbeni 343'*
Crude protein, g/kg DM	84	127
Minerals, g/kg DM	52	125
Crude fiber, g/kg DM	248	336
Acid detergent fiber, g/kg DM	271	347
Neutral detergent fiber, g/kg DM	474	539
Acid detergent lignin, g/kg DM	48	38
Cellulose, g/kg DM	223	309
Hemicellulose, g/kg DM	203	192
Digestible dry matter, g/kg DM	678	619
Relative feed value	133	107
Digestible energy, MJ/ kg	13.28	12.21
Metabolizable energy, MJ/ kg	10.90	10.02
Net energy for lactation, MJ/ kg	6.91	6.04

Table 2.

The fermentation quality, nutrient content and energy value of silage from studied corn hybrids

Indices	*'Porumbeni 374'*	*'Porumbeni 343'*
pH index	3.77	3.74
Content of organic acids, g/kg DM	48.6	53.2
Total acetic acid, g/kg DM	10.3	13.3
Total butyric acid, g/kg DM	0.2	0.2
Total lactic acid, g/kg DM	38.1	39.7
Acetic acid, % of organic acids	21.19	25.00
Butyric acid, % of organic acids	0.41	0.38
Lactic acid, % of organic acids	78.40	74.62
Crude protein, g/kg DM	80	96
Crude fibre, g/kg DM	245	333
Minerals, g/kg DM	59	93
Acid detergent fibre, g/kg DM	258	340
Neutral detergent fibre, g/kg DM	469	530
Acid detergent lignin, g/kg DM	37	31
Cellulose, g/kg DM	221	309
Hemicellulose, g/kg DM	211	190
Digestible dry matter, g/kg DM	688	624
Relative feed value	136	110
Digestible energy, MJ/ kg DM	13.45	12.30
Metabolizable energy, MJ/ kg DM	11.04	10.10
Net energy for lactation, MJ/ kg	7.06	6.12

The quality indices of the prepared silages from the studied corn hybrids are shown in Table 2. The tested corn silages were characterized by suitable fermentation characteristics, good color, pleasant smell, and were free from mold. Upon opening the containers and conducting the organoleptic evaluation of the ensiled mass, it was determined that the silage from sweet corn hybrid *'Porumbeni 343'* was characterized by green leaves and yellowish-green stems, with a pleasant smell reminiscent of pickled watermelon. In contrast, the silage from the dent corn hybrid *'Porumbeni 374'* had a homogeneous light yellow color and a pleasant smell of pickled apples. The pH index of the studied corn silages did not differ, showing optimal values. The concentrations of organic acids varied from 48.6 g/kg dry matter (DM) in the '*Porumbeni 374'* silage to 52.5 g/kg DM in the *'Porumbeni 343'* silage, with most of the organic acids present in the fixed form. The lactic acid constituted 74.62- 78.60% of total organic acids. The higher content of acetic acid was detected in '*Porumbeni* 343' silage. The concentrations of nutrients and energy in the prepared silages were 8.0-9.6% CP, 5.9-9.3% ash, 25.8-34.0% CF, 25.8-34.0% ADF, 46.9-53.0% NDF, 3.1-3.6% ADL, 22.1-30.9% Cel, 19.0-21.1% HC, with 624-688 g/kg DDM, RFV=110-136, 10.10-11.04 MJ/kg ME, and 6.12-7.06. MJ/kg NEl. It was found that during the ensiling process, the amounts of crude protein and minerals decreased considerably in the '*Porumbeni 343*' silage compared to the initial fresh biomass. In both corn silages, the concentrations of lignin decreased. The higher level of crude protein and the lower level of acid detergent lignin were detected in the silage from hybrid *'Porumbeni 343'*. The silage from the dent hybrid '*Porumbeni 374'* stands out due to its lower concentration of crude cellulose, higher level of hemicellulose, and better digestibility and energy supply.

Authors have reported various findings regarding corn silage quality. According to IDRIS et al. (2000) the silage product from sweet corn had 8.2% CP and 5.86 MJ/kg ME. CHEVA-ISARAKUL et al. (2001) found that silage from sweet corn residue had 219.8 g/kg DM, pH=4.21, 6.27% CP, 2.28% EE, 3.10% ash, 77.32 % NDF, 33.90% ADF and 11.03% NFC. DYK (2009) noted that the fermentation profile of silage from the studied corn hybrids, specifically sweet corn waste, had a pH range of 3.7–4.0, with 5.05–10.46% total acids, 1.21–6.60% lactic acid, 3.09–6.67% acetic acid, and 0.01% butyric acid. IDIKUT et al. (2010) mentioned that the quality of silage from sweet corn was 208.9 g/kg DM, pH=3.72, 97.21 g/kg lactic acid, 14.64 g/kg acetic acid, 0.46 g/kg butyric acid, 10.31 % CP, 5.21% ash, 42.90 % NDF, 25.17%ADF, 579.9 g/kg OMD, 8.60 MJ/kg ME, while the silage from conventional corn – 241.3 g/kg DM, pH=3.74, 58.15 g/kg lactic acid, 11.98 g/kg acetic acid, 0.35 g/kg butyric acid, 9.46 % CP, 4.93% ash, 47.82 % NDF, 26.32% ADF, 592.9 g/kg OMD, 8.8.83 MJ/kg ME. COŞMAN (2014) studied the silage quality from diverse crops, and found that dent corn silage contained 310.7 g/kg DM, pH=3.51, 37.0 g/kg lactic acid, 5.3 g/kg acetic acid, 4.44% CP, 2.84% EE, 21.61% CF, 4.91% ash and 15.2 mg/kg carotene; sugar sorghum silage – 213.4 g/kg DM, pH=3.49, 32.1 g/kg lactic acid, 23.0 g/kg acetic acid, 3.25% CP, 2.41% EE, 32.97% CF, 6.43% ash and 4.3 mg/kg carotene; but in amaranth silage – 232.9 g/kg DM, pH=4.02, 25.7 g/kg lactic acid, 10.1 g/kg acetic acid, 9.69% CP, 3.58% EE, 26.19% CF, 10.1% ash and 11.4 mg/kg carotene. CHAUDHARY et al. (2016) remarked that the silage from sweet corn had 354.5 g/kg DM, 6.10% CP, 36.00% CF, 76.80% NDF, 46.95% ADF, 4.55% ADL, 5.24% ash and 56.90% IVDOM, but silage from forage corn had 220.0 g/kg DM, 8.00% CP, 27.80% CF, 65.95% NDF, 36.55% ADF, 3.10% ADL, 6.30% ash and 67.65% IVDOM.

HERRMANN et al. (2016) remarked that corn silage had 302 g/kg dry matter and 95.8 % organic matter, pH= 3.7, 5.1 % lactic acid, 1.6 % acetic acid, 7.8 % CP, 2.6 % EE, 41.2 % NDF, 24.0 % ADF, 2.9 % ADL. CARPICI et al. (2017) mentioned that corn silage quality was characterized by: 329.5- 358.6 g/kg DM, pH= 3.78-3.92, 6.94-7.38% CP, 24.64-26.01% ADF, 52.16-53.45% NDF and 2.15-2.25% WSC. GAAFAR et al. (2017) mentioned that corn silage quality was: pH = 4.15 -4.10, 4.52-4.62 % lactic acid, 332.0 -328.6 g/kg DM, 93.60-93.73% OM, 8.37-8.15% CP, 26.43- 25.77% CF, 2.92-2.85% EE, 55.88 -56.99% NFE, 6.40-6.24% ash, 49.60- 47.85% NDF, 29.70-28.35 % ADF, 5.70- 5.48% ADL, 65.37-65.80% TDN, 5.62-5.39% DCP, 4.419-4.423 Mcal/kg GE, 2.856-2.885 Mcal/kg GE, 64.38-66.23 % OMD, and 64.42-66.99% IVDMD. ŢÎŢEI & ACBAŞ (2018) reported that the dry matter content and forage value of *Zea mays* silage were 294.6 g/kg DM, pH=4.25, 27.6 g/kg lactic acid, 6.2 g/kg acetic acid, 6.52% CP, 3.23% EE, 20.33% CF, 65.66% NFE, 4.26% ash, 25.34 % ADF, 48.47 % NDF, 3.35% ADL, 23.13% HC, 21.99% Cel, 70.1% DDM, 64.4% DOM, RFV=132. LI et al. (2021) mentioned that the chemical composition of the silage from dual-purpose corn type was 333.4 g/kg DM, pH 3.84, 48.6 g/kg lactic acid, 10.2 g/kg acetic acid, 8.73% CP, 2.38% EE, 27.75 % starch, 2.26 %WSC, 43.12 % NDF, 22.49 % ADF, 2.47 % ADL, 4.90% ash, 71.84% TDN, but from silage-specific corn 293.7 g/kg DM, pH 3.88, 50.6 g/kg lactic acid, 13.8 g/kg acetic acid, 8.82% CP, 2.08% EE, 22.90 % starch, 2.29 %WSC, 50.34 % NDF, 25.97% ADF, 3.14 % ADL, and 4.88% ash, 68.36 % TDN. ESEN et al. (2022), mentioned that the dry matter content and the chemical composition of corn ensiled material was: 247.1 g/kg DM with 7.54% CP, 6.73% ash, 55.44 % NDF, 30.90% ADF, 4.73% ADL, 24.54% HC, 26.17% Cel, pH =3.90, 3.95 g/kg free lactic acid, RFV=108.9. ZHANG et al. (2022) found that whole plant corn silage had pH =3.82, 7.6 g/kg lactic acid and 1.14 g/kg acetic acid contained 294.2 g/kg DM with nutrient composition 10.32 % CP, 2.06 % EE, 4.33% ash, 48.36% NDF, 30.38 %ADF and 28.56 % starch; sweet corn stalklage had pH =4.53, 3.84 g/kg lactic acid, 0.56 g/kg acetic acid, 252.1 g/kg DM, 11.41 % CP, 1.78 % EE, 4.26 % ash, 50.57 % NDF, 36.35 %ADF, 19.37 % starch; corn stalklage had pH =4.14, 4.67 g/kg lactic acid, 0.74 g/kg acetic acid, 344.7 g/kg DM, 9.68 % CP, 1.13 % EE, 6.18 % ash, 62.72 % NDF, 39.36 %ADF and 13.48 % starch. KINTL et al. (2023) noted that the dry matter content and forage value of *Zea mays* silage was 212.3 g/kg DM, 15.6% CP, 2.24% EE, 23.48% CF, 12.37% carbohydrates, 19.83 % starch, 4.90% ash, 27.68 % ADF, 58.11 % NDF, 3.43% lignin. According to COŞMAN et al. (2023), the quality of the silage prepared from dent corn plant harvested in kernel milk stage was 202.5-262.8 g/kg DM, 7.63-9.13% CP, 2.35-3.27% EE, 26.65-28.05% CF, 45.85-50.72% NFE, 1.35-1.79 % sugar, 15.15-28.00 % starch, 5.50-7.43% ash, 2.2-3.1 g/kg Ca, 1.7-2.2 g/kg P, 15.15-28.00 mg/kg carotene; corn silage prepared in kernel milk-wax stage – 277.0-317.2 g/kg DM, 5.56-8.00% CP, 2.19-4.02% EE, 18.42-26.48% CF, 54.47-61.35% NFE, 1.65-6.56 % sugar, 10.18-17.33 % starch, 3.92-5.63% ash, 1.6-3.8 g/kg Ca, 1.2-2.2 g/kg P, 10.80-16.17 mg/kg carotene; while silage prepared in kernel wax stage – 30.73-40.96 g/kg DM, 6.63-7.31% CP, 2.82-3.82% EE, 14.50-18.41% CF, 61.63-66.90% NFE, 1.59-2.47 % sugar, 19.32-27.45 % starch, 3.41-3.93% ash, 1.6-3.3 g/kg Ca, 1.5-2.9 g/kg P, 19.67-21.02mg/kg carotene SHARIF et al. (2023) reported that the the quality of corn silage was pH=3.90, 327.8 g/kg DM, 1.95 % lactic acid, 1.28 % acetic acid, 8.35 % CP, 2.34 % EE, 22.12% CF, 5.12% ash, 51.12 % NDF, 26.12 % ADF.

CONCLUSIONS

The forages from sweet corn hybrid *'Porumbeni 343'* was characterized by a higher level of crude protein and a lower level of acid detergent lignin.

The forages from the dent corn hybrid *'Porumbeni 374'* stands out due to its lower concentration of crude cellulose, higher level of hemicellulose, and better digestibility and energy supply.

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