CZU: 633.253(478)

THE QUALITY INDICES OF THE BIOMASS FROM *AVENA SATIVA* CV. 'SORIN' GROWN UNDER THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

Tîtei Victor[1], Horablaga Nicolae Marinel[2,4], Garştea Nina[1], Coşman Sergiu[1,3], Horablaga Adina[4], Mardari Liliana[1], Cozari Serghei[1], Coşman Valentina[1,3], Cojocariu Luminița[4], Mazare Veaceaslav[4], Armaş Andrei[4], Ababii Alexei[1]

[1]„Al. Ciubotaru" National Botanical Garden (Institute), SUM, Chisinau, Republic of Moldova

[2]Agricultural Research and Development Station Lovrin, Timisoara, Romania

[3]Institute of Biotechnology in Animal Husbandry and Veterinary Medicine, Maximovca, Anenii Noi, Republic of Moldova

[4] „Regele Mihai I" University of Life Sciences, Timisoara, Romania

E-mail: vic.titei@gmail.com

Currently *Poaceae* species are the most commonly used herbaceous plants as food, feed and bedding for animals, raw material for biorefinery to produce fuels, power, heat, and value-added chemicals.

The goal of this research was to evaluate the quality indices of the green mass, ensiled mass and hay from common oat *Avena sativa* as fodder for animals, as well as feedstock for the production of biomethane for renewable energy.

The cultivar of common oat *Avena sativa* 'Sorin' created at the Agricultural Research and Development Station Lovrin and cultivated experimental field of the NBGI, Chisinau, served as subject of the research. The quality indices have been determined by near infrared spectroscopy technique, nutritional value and energy supply of the feeds and the biochemical methane potential of substrates were calculated according to standard procedures.

The results revealed that the dry matter of whole oat plants contained 9.5% CP with forage value 598-603 g/kg DDM, RFV= 89, 11.84MJ/kg DE, 9.72-MJ/kg ME and 5.37MJ/kg NEl; prepared hay 10.5% CP, 574 g/kg DDM, 11.40 MJ/kg DE, 9.36 MJ/kg ME and 5.39 MJ/kg NEl. The ensiled forage (haylage) is characterized by pH = 3.77, 38.1g/kg lactic acid, 5.9g/kg acetic acid, 10.2% CP, 567-619 g/kg DDM, 11.28MJ/kg DE, 9.26MJ/kg ME and 5.29-MJ/kg NEl. The biochemical methane potential of the studied substrates from *Avena sativa* reaches 329-355 l/kg VS.

***Acknowledgments*:** This study was supported by the research project nr. 20.80009.5107.02 „Mobilization of plant genetic resources, plant breeding and use as forage, melliferous and energy crops in bioeconomy" and nr. 20.80009.5107.12 „Strengthening the food-animal-production" chain by using new feed resources, innovative sanitation methods and schemes", funded by National Agency for Research and Development.

Keywords: Avena Sativa, biochemical composition, biomethane, ensiled forage, fodder value, green mass, hay, nutritional value.