CZU: 573.6:635.24

THE QUALITY OF FRESH AND ENSILED BIOMASS FROM NEW CULTIVAR „MARIA" OF *HELIANTHUS TUBEROSUS*

Ţîţei Victor*, Doroftei Veaceaslav, Cozari Serghei, Mocanu Natalia
„Alexandru Ciubotaru" National Botanical Garden (Institute),
Chisinau, Republic of Moldova
*E-mail: vic.titei@gmail.com

Topinambur *Helianthus tuberosus* L. belonging to the botanical family Asteraceae, native to the central region of North America, is a crop with great potential for human consumption, generating tubers that store carbohydrates such as inulin and fructooligosaccharides have beneficial effects on nutrition and human health. The aerial part is used as fodder for animals in the summer season and the tubers in the winter season. *Helianthus tuberosus* is food resource for pollinators, since flowering occurs at a time of low food supply for bees and wasps.

The main objective of this research has been to evaluate quality of fresh and ensiled biomass from new cultivar „Maria" of topinambur, *Helianthus tuberosus* which has been cultivated in the experimental field of the National Botanical Garden (Institute), Chişinău, and prospects of its use as fodder for farm animals or as substrates for biomethane production. The results of our research revealed that the dry matter of the harvested whole plants contained 117 g/kg CP, 77 g/kg ash, 329 g/kg CF, 360 g/kg ADF, 586 g/kg NDF, 64 g/kg ADL, 296 g/kg Cel, 226 g/kg HC, 214 g/kg TSS, with nutritive value 60.9% DMD, RFV= 97, 12.03 MJ/kg DE, 9.88 MJ/kg ME and 5.89 MJ/kg NEl. The enseled mass was characterized by agreeable colour with specific smell and pH 3.85, the silage dry matter contained 116 g/kg CP, 99 g/kg ash, 345 g/kg ADF, 522 g/kg NDF, 46 g/kg ADL, 299 g/kg Cel, 177 g/kg HC, 214 g/kg TSS, with nutritive value 62.0% DMD, RFV= 111, 12.24 MJ/kg DE, 9.91 MJ/kg ME and 6.06 MJ/kg NEl. The green and enseled mass substrates for anaerobic digestion, have optimal C/N ratio, amount of lignin and hemicellulose, biomethane potential varied from 272 to 329 l/kg ODM.

The green mass and silage obtained from the new cultivar „Maria" of *Helianthus tuberosus* largely meets the standards and can be used as alternative feed for animals and substrate for anaerobic digestion in biogas plants.

***Acknowledgments*:** Research was carried out within the projects of the State Program no. 20.80009.5107.02 *"Mobilization of plant genetic resources, plant breeding and use as forage, melliferous and energy crops in bioeconomy"* financed by the National Agency for Research and Development.

Keywords: *Helianthus tuberosus*, quality of biomass, cultivar „Maria", alternative feed, anaerobic digestion.