SOME BIOLOGICAL FEATURES AND BIOMASS QUALITY OF *LUPINUS ALBUS* AND *LUPINUS LUTEUS* IN MOLDOVA

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Abstract

Fabaceae species play a crucial role in natural ecosystems and agriculture, because they have the potential to symbiotic fixation of atmospheric nitrogen and soil carbon sequestration, improve biological activity and soil structure, increase the quality and quantity of food and feed, bring improvements resource efficiency in various biorefinery systems. We have studied biological features, biochemical composition and nutritive value, and have estimated the biomethane potential of aerial biomass of the *Fabaceae* species *Lupinus albus* and *Lupinus luteus*, which have been cultivated in the experimental plot of the "Alexandru Ciubotaru" National Botanical Garden (Institute), Chisinau, R. Moldova, *Medicago sativa* and *Onobrychis viciifolia* were used as control variants. The results of our research revealed that the dry matter of harvested whole plants of *Lupinus* species contained 166-206 g/kg CP, 86-110 g/kg ash, 221-258 g/kg ADF, 337-339 g/kg NDF, 31-40 g/kg ADL, 190 - 218g/kg Cel and 116-141 g/kg HC. The nutritional value of *Lupinus* green mass:75.5- 80.9 % DDM, 72.9-76.6 % DOM, RFV 168-208, 13.45-13.96 MJ/kg DE, 11.04- 11.46 MJ/kg ME and 7.06-7.48 MJ/kg NEl. It has been found that the biomethane potential of the *Lupinus* substrates varied from 309 to 324 l/kg ODM.The annual species *Lupinus albus* and *Lupinus luteus* are a promising source of fodder and feedstock for biomethane production.

Keywords: biochemical composition, *Lupinus albus*, *Lupinus luteus*, nutritive value