

BIOLOGICAL PECULIARITIES OF CUP PLANT (*Silphium perfoliatum* L.) AND UTILIZATION POSSIBILITIES IN THE REPUBLIC OF MOLDOVA

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Abstract

The research concerning the improvement and implementation of new species and cultivars of multiple values is dictated by the requirements of the national economy. The cup plant, *Silphium perfoliatum* L., a perennial herbaceous plant in the *Asteraceae* family, native to North America, is of particular interest. The biological particularities, productivity, chemical composition and nutritional value of natural and pickled (silage) fodder, as well as the energy capacity of aerial dry biomass of cup plant, the local variety “Vital”, created in the Botanical Garden (Institute) of ASM, registered in the Catalogue of Plant Varieties of the Republic of Moldova in 2012, have been studied. It has been established that the harvest of fresh mass at the first mowing, in late April, reaches 1.60 kg/m², during May – 3.66 - 5.62 kg/m², the leaves constituting more than 50% and in the bud formation - flowering stage – about 10.21-10.51 kg/m², with a content of leaves in the fodder of 33-37%. The fodder of cup plant, harvested in late May, contains an optimal amount of protein (16.33%) and fat (2.26%), but is characterized by a low content of cellulose (24.70%), a rather high content of minerals (14.16%) and nitrogen free extractive substances (42.55%) compared with alfalfa. The fresh mass of cup plant, harvested during June, is ensilaged without applying chemicals, 1 kg of silage contains: 0.13-0.16 nutritive units, digestible protein 87-114 g/nutritive unit. The dry stems of cup plant can be harvested in winter with technical means for harvesting fodder and can be used in the production of solid biofuel, making briquettes and pellets. The harvested biomass has an energy capacity of about 18.3 MJ/kg of dry mass and the ash content of 2.5%.

Key words: cup plant, *Silphium perfoliatum*, biological peculiarities, fodder plant, energy plant, productivity, nutritional value, energy capacity of biomass.