PROSPECTS FOR THE UTILIZATION OF THE *Silphium perfoliatum* AND *Silphium integrifolium* FOR RENEWABLE ENERGY PRODUCTION IN MOLDOVA

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The cup plant *Silphium perfoliatum* L. and rosinweed *Silphium integrifolium* Michx,. *Asteraceae* family, native to North America, which were introduced and cultivated in the experimental plot of the "Alexandru Ciubotaru" National Botanical Garden (Institute) of Moldova served as subjects of the research. This research was aimed at evaluating the biomass energy indices of green harvested mass as feedstock for biogas production and stem dry mass as feedstock for cellulosic ethanol. The biochemical composition of green mass and dry stem mass have been determined by NIRS technique PERTEN DA 7200 of the Research and Development Institute for Grassland Braşov, Romania. It has been determined that harvested green mass from *Silphium* species contained: 13.7-16.4 % CP, 84-90 g/kg ash, 48-49 g/kg ADL, 306-327 g/kg Cel, 222-227 g/kg HC and the estimated biochemical methane potential of studied

substrates were 331-338 l/kg ODM. The analysis of cell wall components of stem dry mass revealed that studied substrates from *Silphium* species contained 487-534 g/kg cellulose, 258-274 g/kg hemicellulose, 95-112 g/kg acid detergent lignin and the estimated theoretical ethanol yield averaged 553-575 L/t. The investigated *Silphium integrifolium* and *Silphium perfoliatum* species, may be use as multi-purpose feedstock for renewable energy production in Republic of Moldova.

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