THE CELL WALL COMPONENTS AND THEORETICAL ETHANOL POTENTIAL OF *SILYBUM MARIANUM* STEMS

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Cellulosic ethanol produced from plant mass is currently a topic of great interest for researchers. *Silybum marianum*, Asteraceae family, is a species of thistle, a very large and conspicuous annual or biennial plant, growing up to 2.5 m tall, native to the Mediterranean region, parts of Asia and Russia. Milk thistle is an adaptive crop with low requirements, known particularly as medicinal plant; its seeds contain approximately 4–6% silymarin. The main objective of this research was to evaluate cell wall components and the theoretical ethanol potential of *Silybum marianum* stem dry mass collected after seed production in an experimental field of the National Botanical Garden (Institute), Chişinău, Republic of Moldova. The cell wall components 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 *Silybum marianum* stems contained 850 g/kg dry matter. The comparative analysis of cell wall components revealed that *Silybum marianum* substrate contained 459g/kg cellulose, 296 g/kg hemicellulose and 108 g/kg acid

detergent lignin, but corn stalks substrate respectively 417 g/kg cellulose, 250 g/kg hemicellulose and 82 g/kg acid detergent lignin. The estimated theoretical ethanol yield from cell wall carbohydrates averaged 536 L/t in *Silybum marianum* substrate, as compared with 485 L/t in corn substrate.

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Key words: cell wall components, *Silybum marianum*, theoretical ethanol potential