

THE CELL WALL COMPONENTS AND THEORETICAL ETHANOL POTENTIAL OF *MACLEAYA CORDATA* (Willd.) R.Br. STEMS

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Lignocellulosic biomass is a sustainable feedstock for fuel ethanol production. Cellulosic ethanol produced from plant mass is currently a topic of great interest for researchers. Plume poppy *Macleaya cordata* (Willd.) R.Br., family *Papaveraceae*, native from is perennial herbaceous species with medicinal, melliferous, ornamental, and energy biomass utility. The main objective of this research was to evaluate cell wall components and the theoretical ethanol potential of *Macleaya cordata* stem dry mass collected at the early of April in an experimental field of the National Botanical Garden (Institute), Chișinău, Republic of Moldova. The cell wall components have been determined by NIRS technique PERTEN DA 7200 of the Research and Development Institute for Grassland Brașov, Romania. It has been determined that harvested *Macleaya cordata* stems contained 894 g/kg dry matter. The comparative analysis of cell wall components revealed that *Macleaya cordata* substrate contained 472g/kg cellulose, 251 g/kg hemicellulose and 109 g/kg acid detergent lignin, but control –*Zea mays* 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 525 L/t in *Macleaya cordata* substrate, as compared with 485 L/t in *Zea mays* stalks substrate.

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Key words: cell wall components, *Macleaya cordata* stems, theoretical ethanol potential