

C.17. MICROSTRUCTURAL AND FT-IR ANALYSIS OF SOME RAW BIOMASS USED AS SOLID BIOFUELS

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Abstract. Vegetal biomass is a renewable raw resource with significant industrial applications, and several studies are focused on developing and improving this category of fuels. The calorific value of biomass is determined by its chemical composition, especially the calorific value of structural components and extractives. Vegetable residue from plantations and trees has not been significantly utilized for energy purposes due to a number of limitations, with logistics being the most significant. This article focuses on examining the morphological structure and characteristics of three typically cultivated biomasses in Moldova, on both the left and right banks of the Prut River: lean, white buckthorn, and miscanthus. Utilizing scanning electron microscopy (SEM Quanta 200 3D), X-ray analysis (Xpert PRO MPD), and FT-IR, the biomass was evaluated accordingly. All wood samples were subjected to a chemical examination that included the morphological aspect and the measurement of extractive compounds, lignin concentration, and hemicellulose content.

Acknowledgement: This research was funded by the Joint Operational Programme Romania—Republic of Moldova 2014–2020, grant number 2Soft/1.2/44 BCS Ro-Md cross-border grant project “Improving the quality of solid biofuels produced from raw material collected from both sides of Prut river”, financed by ENI CBC.

Keywords: SEM analysis, XRD analysis, FT-IR analysis, vegetal biomass.