



Determination of carbonates in the soils of Ciurea commune

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Abstract

The soil, a complex mixture of organic and inorganic elements, interacts with each other, influenced by weathering, adsorption, and biological processes, making it a dynamic and intricate system. Carbonate content in soils is shaped by various factors including parent rock composition, biological activity, decomposition, and climatic conditions. This study aims to determine carbonate levels in surface soils near Iași using a pressure calcimeter, offering a precise and straightforward method. Surface soils in Ciurea and Picioru-Lupului villages exhibit uneven carbonate distribution, with highest concentrations in northern and southern areas. Carbonate originates from diverse sources such as parent rock, biological processes, organic matter decomposition, atmospheric interactions, and human activities like fossil fuel combustion. The determination method involves measuring pressure following hydrochloric acid reaction, employing a cost-effective calcimeter setup. Swift sample preparation and analysis characterize the process, with drying being the only time-consuming step. This approach provides rapid and reliable results, showcasing its efficacy in soil research and environmental monitoring.

Keywords: soil, calcimeter, carbonate determination, Arduino, Ciurea
