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Mineralogy of the sands from the Romanian Black Sea Coast

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Abstract

In the present paper, beach sediments from the Black Sea coast have been studied in order to establish their composition and decipher their origin. The study area is composed of fine and very fine sand. A total of 25 samples were selected for mineralogical analyses; the heavy and light minerals were identified through X-ray diffraction, using a Shimadzu LabX XRD-6000 diffractometer with a Cu anticathode. The samples analyzed can be divided into two categories: those gathered in the southern part of the study area (Eforie-Vama Veche) are predominantly composed of calcite (15 samples), while those collected from the northern sector (Năvodari-Constanța) are predominantly made up of quartz (10 samples). The X-ray diffraction patterns of the mineral concentrates indicate the presence of quartz, feldspars, a mixture of carbonate minerals, hematite, and albite. The heavy minerals identified are pyroxenes, amphiboles, muscovite, rutile, and garnet. The sands of the Romanian seaside have contents similar to those of sediments from other coastal areas of the world in terms of light minerals, with a higher content of carbonates and quartz and a lower content of clay minerals.

Keywords: Black Sea coast, XRD, minerals, coastal sediments.

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