

عنوان مقاله:

Soil Genesis and Clay Mineralogy along the Xeric-Aridic Climotoposequence in South Central Iran

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خلاصه مقاله:

Topography and climate are two important soil forming factors affecting genesis and clay mineralogy of soils. Calcareous and gypsiferous soils are widely spread in arid and semiarid parts of Iran and palygorskite is a dominant clay mineral in these soils. The objectives of the study were to: (1) determine soil genesis and classification along the climotoposequence and (2) investigate clay mineralogy and mode of mineral formation in soils along the sequence. The study area is a transect located in the southwest of Kerman Province covering ۱,۲۰۰ km^۲ beginning from Kerman Plain (۱,۸۴۰ m above sea level) with aridic moisture regime and extending to Lalehzar elevation (۳۲۰۷ m above sea level) with xeric moisture regime. Soil parent material changed from recent Quaternary alluvium in north of the transect (Kerman Plain) to the materials originated from weathering of igneous granodiorites of Lalehzar Mountains in the south. Illite, high charge smectite, palygorskite, chlorite and kaolinite clay minerals were found in almost all the soils studied. Smectite-vermiculite interstratified minerals were found only in Histosols (pedon λ at lowland geomorphic position close to Lalehzar Mountain), which are attributed to higher soil moisture in this geomorphic surface. Palygorskite bundles were associated with both calcite and gypsum crystals and they were both pedogenic and inherited from the parent material. Due to higher soil moisture at the end of the transect (Lalehzar elevation), palygorskite was not observed. A close relation was found between soil properties, topography, and climate in the studied sequence.

کلمات کلیدی:

Central Iran, Climotoposequence, Mixed interstratified minerals, Palygorskite

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