



Peculiar fabric of solonchaks derived from gypsum-enriched deposits in the Pre-Baikal region

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The saline soils locally spread in the southern part of the Lena and Angara interfluvium in Eastern Siberia proved to be very specific due to cryoarid conditions of the soil formation. In this area situated in the junction of the arid region in Central Asia with the cryolithozone the saline soils are developed from gypsum-enriched deposits. Morphologically such deposits are represented by a mealy light-gray mass composing of fine gypsum crystals. The gypsum content accounts for 70-90%. The deposits are different in depth being from several centimeters to 2 m. The soils on gypsum-enriched deposits occur in dry tropics practically within all the continents, however they are believed to be exotic for the environmental conditions in the Pre-Baikal region with the cold severe continental climate. The soils are confined to the first river terraces – the Angara stream tributaries and have a three-layered profile composing of humus and gypsic horizons underlying by alluvial deposits; infrequently there is a buried humus horizon under gypsic one. According to B.I. Nadezhdin and Sh.D. Khizmatullin, the gypsum was formed as a result of sedimentogenesis.

The gypsum microstratification observed in the course of our study serves as an evidence of such a hypothesis. Gypsiferous solonchaks located in the first terrace of the Kuda tributary have been thoroughly examined. A representative profile of these soils consists of humus, gypsic and buried horizons underlying by red-brown Cambrian clays. The micromorphological study showed a peculiar profile fabric. The humus horizon is characterized by abundance of pseudorhomboid gypsum crystals in the clay-mineral mass; the gypsic horizon is represented by a homogeneous mass, containing fine (<0.01 mm) pseudorhomboid (spindle-shaped) gypsum crystals in the form of vortex-like accumulations; the silt-sized calcite is dominant in the buried horizon. Thus, macro- and microfeatures of the soils under study as well as the composition,

content and distribution of carbonates and gypsum throughout the profile make it possible to consider these soils as synlithogenic ones.

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