Characteristics of Clay Minerals in Particles of the Zonal Soils from the Jiugong Mountain

LIU Zhi-jie, DONG Xue, LIU Fan, HUANG Li*

(*Key Laboratory of Arable Land Conservation (Middle and Lower Reaches of Yangtze River), Ministry of Agriculture, Huazhong Agricultural University, Wuhan* 430070, *China*)

Abstract: Characteristics of clay minerals in various particle fractions (<2000, 450-2000, 100-450 and 25-100 nm) of four vertical zonal soils (Base brown-red soil, Mountain yellow-red soil, Mountain yellow-brown soil, Mountain meadow soil) from Jiugong mountain in Hubei Province were investigated to reveal the evolution of clay minerals in mountain soils. Results indicate that the contents of goethite, hematite and kaolinite decrease but those of illite, 14.2 Å minerals and gibbsite increase in soils with increasing altitude. With reducing soil particles size, the changes of composition and crystallization of clay minerals are obvious, and the relative content of 14.2 Å minerals, kaolinite and illite decrease but those of goethite and hematite increase. With the elevation of mountain, trioctahedral mineral increase while dioctahedral mineral decrease in soils. However, these changing rules are contrary to the reducing rules of soil particle sizes.

Keywords: Jiugong mountain; Vertical zonality; Soil particle; Size; Clay mineral