

## **MINERALOGY AND CHEMICAL COMPOSITION OF THE REDDISH RESIDUAL SOILS FROM SOUTH KOREA**

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Abundant reddish residual soils, so called Hwangto in Korean, are widely distributed in the Korean peninsular. The mineralogy and chemical composition of the reddish residual soils according to the various host rocks are investigated in the present study. Generally, yellowish weathering soils are underlain by the reddish soils belonging to a B horizon in the soil profile. The red soils consist of about 40-80% of clay minerals, quartz, a lesser amount of feldspar, gibbsite and iron oxides. The clay minerals are mainly composed of kaolin minerals, illite, and hydroxy interlayered vermiculite (HIV) with minor amount of illite/vermiculite interstratified mineral and chlorite. The clay minerals are mainly kaolin minerals followed by HIV in amount. The yellowish soils contain more illite in amount. Relatively high amount of kaolin minerals was detected in the areas of granite or gneiss, whereas more illite in area of sedimentary rock. Kaolin minerals include poor crystalline kaolinite together with tube-shaped halloysite. Generally, yellowish soils contain relatively more halloysite. The major chemical compositions of the red soils are SiO<sub>2</sub> 45-65%, Al<sub>2</sub>O<sub>3</sub> 16-24%, Fe<sub>2</sub>O<sub>3</sub> 4-12%, MgO 0.6-2.9%, K<sub>2</sub>O 1-4%, H<sub>2</sub>O 5-15%, and a minor amount of other components. Compared with the yellowish soils, they contain more Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, and H<sub>2</sub>O in amount. The trace chemical compositions of the red soils shows little differences in amount depending on the types of host rocks. The red soils contain Co, Ni, Cu, Rb, Y, Nb, Cs, La, Ce, Pr, Nd, Sm, Dy, and Pb in amount of more than 10 ppm.