

## Kaolinite cristalinity index of Latosols as environment indicator of the Brazilian Central Plateau geomorphologic surfaces

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The Brazilian Central Plateau is constituted of the South American Surface and Velhas Surface geomorphologic surfaces and represents 24% of the Brazilian territory. Latosols cover about 40% of these Surfaces. Kaolinite, gibbsite, goethite and hematite were recognized in different proportions in the clay fraction of Latosols by many authors. The objective of this work was to analyse the kaolinite cristalinity and to discuss its variability according to the Latosol location on the geomorphic Surfaces of the Brazilian Central Plateau. Ten Latosols (L) developed in different parent materials were selected for study along an approximately 350 km long regional toposequence across the South American Surface (L1 to L4) and Velhas Surface (L5 to L10). Samples were collected in the diagnostic horizon (Bw) of these Latosols. Chemical composition obtained after dissolution in sulfuric acid was used to estimate the kaolinite, gibbsite, goethite and hematite content. Goethite and hematite content was also estimated using the soil color (hue, value and chrome). The mineralogical composition of the oriented < 2 µm fraction was also determined by using X-ray diffraction (Thermo Electron ARL XTRA, Cu tube, 0.05° 2θ step). The Hincley index was used to quantify the kaolinite cristalinity in the non-oriented clay fraction X-ray diffraction (INEL XR3000 transmission, Co monochromator, Co tube, sample inside a capillary 0.5mm in diameter, resolution 0.03). The results showed that the variation of the kaolinite cristalinity index ( $K_{Cl}$ ) was closely related to the kaolinite/gibbsite ( $RKGb$ ) ratio as shown by the following relationship

$$K_{Cl} = -0.9603 RKGb + 1.2752 \quad (R^2 = 0.8653)$$

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