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Morphological, physico-chemical and geochemical characterization of two weathering profiles developed on limestone from the Mintom Formation in the tropical humid zone of Cameroon

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1 Morphological, physico-chemical and geochemical characterization of two weathering
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3 Cameroon

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Abstract

13 The purpose of this work was to study the morphology, physico-chemistry and
14 geochemistry of two weathering profiles developed on limestone using observations area,
15 basic analysis, and X-ray Fluorescence. The results showed that these soils have three main
16 sets from the bottom to the top: the alteritic set (isalteritic and alloteritic horizons), the
17 glaeular set (exclusively on profile TCR) with a more or less hardened duricrust, and the
18 loose set (loose clayey and humiferous horizons). The soils were acid, with moderate cation
19 exchange capacity, low to moderate sum of bases (0.96-8.24 meq/100g). The base saturation,
20 organic carbon and C/N ratio (<15) were low. The geochemical signatures of the bedrock
21 along the whole profile are not preserved, with SiO₂ (~45.26 wt.%) being the dominant oxide
22 followed by Al₂O₃ (~13.37 wt.%) and Fe₂O₃ (~09.36 wt.%). Also, the Si/Al ratio is always
23 higher than 1 (2.17-4.43). The other major oxides such as MgO, K₂O and Na₂O show
24 negligible contents in the profiles, while CaO is well represented at the top of the isalteritic

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