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Pedogenic iron oxides in typical Chromic Luvisol and leached Chromic Luvisol

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Two Luvisol profiles from Bulgaria have been sampled in detail with the aim to better reveal iron oxide mineralogy, genesis and grain size variations in pedogenic fraction. Combination of magnetic investigations, chemical analyses and physical characteristics (pH, mechanical grain size fractions) are used for this purpose. Both soil profiles show strong magnetic enhancement in their upper horizons, suggesting formation of pedogenic magnetic fraction. Calculated S-ratio along the depth show the presence of magnetically soft minerals in soil horizons and significant fraction magnetically hard minerals in C-horizons. Similar variation show also magnetic fraction carrying stable remanent signal. Total iron content, as well as dithionite extractable fraction is enhanced in soil horizons, thus suggesting pedogenic formation of crystalline iron oxides. Effects of leaching are identified through both magnetic and chemical characteristics.