

Determination of superficial areas in minerals from tropical soils: the Santa Maria da Boa Vista vineyards, NE Brazil

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The introduction of irrigated vineyards in the semi-arid tropical soils of NE Brazil resulted in an increase of organic matter, salinization, reduction of acidity, and mobilization of silicate minerals, iron oxides and free aluminum. The objective of this study was to evaluate the spatial variability of the colloid superficial area from these soils, as well as the influence of the antropogenic action on them. The A and B horizons from two areas were studied, which are separated by a drainage channel: one of them has irrigated vineyard (*vitis spp.*) and the other one is covered by native vegetation, typical of dry and hot areas. 150 samples were collected, according to the Krieg method, using an internodal spacing of 10m. Using the ethylene glycol monoethyl-ether method, average values of $40\text{m}^2\text{kg}^{-1}$ in the horizon A and $61\text{m}^2\text{kg}^{-1}$ in the B were found, the values showing a spatial variability. Values from the superficial area have positive correlation with carbon, iron oxides, clay and P_2O_5 contents. Higher superficial area values are found in the A horizon of the irrigated area, due to the presence of higher organic carbon contents, and proximity of the drainage channel. This behavior may be due to the incorporation of finer-grained material, during the process of dragging of the channel, which modified the soil behavior. No consistent relationships were found either between superficial area and surface curvature or between superficial area and the distance to the vineyards.