

Geochemical mapping of phosphorus in drainage sediments of Pernambuco State, Brazil

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Phosphorus (P) is an essential element for life as primary nutrient. Their presence and availability in soils is essential, however, when available in excess in the water, may be responsible for the eutrophication of water bodies.

Analytical results of P in sediments from drainage obtained at the Multipurpose Geochemistry Project in Pernambuco State, executed by the Geological Survey of Brazil (CPRM), were used to produce the geochemical mapping of low density.

Were analyzed by ICP-OES sediments in fractions <80 mesh. Statistical analysis of dispersion of data obtained provided thresholds above which the levels of P may be considered anomalous. The geochemical maps combine statistical distribution of the percentiles (25%, 50% and 75%) to levels of toxicological and crustal reference, resulting in products that serve both for environmental purposes regarding the delineation of prospective areas.

The regional geochemical mapping confirmed areas of known occurrences, as the phosphorite mineralization of the Pernambuco-Paraíba Basin and the mining district of Sumé, and also highlights some areas within the State of likely prospective potential. These are located mainly over the Meso-Neoproterozoic complexes and predominantly in fault zones, where the paragenesis and tectonic setting suggest the possibility of lenticular bodies of carbonatite [1], although these are not yet mapped.

The hypothesis suggests potential to prospective studies of detail, since the anthropogenic contamination is unlikely because of the semi-arid climate does not favor the accumulation of organic matter and the agricultural activity is limited.

[1] LAPIN *et al.* (1999) *RBG* **29**, 483-490.

Chiral interactions of amino acids in a hydrated vermiculite clay

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Recent work suggests a link between chiral asymmetry in the amino acid iso-valine extracted from the Murchison meteorite and the extent of hydrous alteration.

We present the results of neutron scattering experiments on an exchanged, 1-dimensionally ordered n-propyl ammonium vermiculite clay. The vermiculite gel has a (001) d-spacing of order 5nm at the temperature and concentration of the experiments and the d-spacing responds sensitively to changes in concentration, temperature and electronic environment. The data show that isothermal addition of D-histidine or L-histidine solutions produces shifts in the d-spacing that are different for each enantiomer. This chiral specificity is of interest for the question of whether clays could have played an important role in the origin of bihomochirality.