

ORIGIN OF ORGANIC MATTER AND QUANTITY OF TRANSPORTED MATERIAL FROM JAGUARI RIVER, SP AND MG, BRAZIL

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The objective was to investigate the origin of the organic matter of the sediment and the particulate material in the Jaguari River, under the influence of different land uses. The basin, a few decades ago, replaced the original vegetation of Savanna Brazilian and Atlantic Forest (C3 plants), for several agricultural uses, predominantly pastures (C4 plants), small crops, eucalyptus plantations and urbanization. Currently, it is located in a region with strategic environmental and location characteristics, which allowed the intensification of disorderly agricultural, industrial and population development. The study began in January of 2015 (one hydrological year), with monthly collections in 13 sampling stations in the Jaguari River, with influence of forest ecosystem, agricultural crop, pasture and urban use. The suspended particulate material, thin (MPS-F) and coarse (MPS-G), fractionated in the field by sieving (63 μ m mesh) and quantified in mass concentration; the sediment collected randomly with dredge in August. The isotope ratio was determined on the Thermo Quest Finningan Delta Plus mass spectrometer. The highest concentrations of MPS-F observed at the upstream of River, being 21% higher than in the downstream, due to mountainous relief of the region, the maximum and minimum concentration was 70.5 and 8.6 mg L⁻¹. The MPS-F $\delta^{13}C$ varied from -22.8 to -20.8‰ at the upstream, -21.7 to -18.5 ‰ in the middle point and -19.9 to -18.4‰ downstream. A difference found in the MPS-F between upstream and downstream average of -3.1‰. The lowest value of $\delta^{15}N$ of -4.8 ‰ occurred at spring water JN1 and the highest value of 5.2‰ at a point characterized by urbanization (J8) and domestic sewage. MPS-G at the upstream was 82% higher than in the downstream section (J9=0.7mg L⁻¹; J10=0.9mg L⁻¹) and $\delta^{13}C$ ‰ varied in the range of -26.3 -24.4‰ at the headwaters, -25.1 to -23.6‰ in the middle stretch and -24.6 to -23.6‰ downstream, with a difference of -1.6‰ between the upstream and downstream. Values more enriched in MPS-F than in MPS-G, representing a more modified material in the long time. The MPS-G is a recent input material into the river reflecting the vegetation of the basin plateau. Thus, MPS and sediment reflect diverse uses in the different stretches of the basin, with predominance of forest ecosystem origin at the headwaters, pasture and agriculture mix in the middle stretch and urbanization marked by domestic sewage downstream of the river.

Keywords: Isotopic composition, watershed, land use

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