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Soil Quality of Restinga Forest: Organic Matter and Aluminum Saturation

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The restinga vegetation (sand coastal plain vegetation) consists of a mosaic of plant communities, which are defined by the characteristics of the substrates, resulting from the type and age of the depositional processes. This mosaic complex of vegetation types comprises restinga forest in advanced (high restinga) and medium regeneration stages (low restinga), each with particular differentiating vegetation characteristics. Of all ecosystems of the Atlantic Forest, restinga is the most fragile and susceptible to anthropic disturbances. The purpose of this study was evaluating the organic matter and aluminum saturation effects on soil quality index (SQI). Two locations were studied: State Park of the Serra do Mar, Picinguaba, in the city of Ubatuba (23º20' e 23º22' S / 44º48' e 44º52' W), and State Park of Cardoso Island in the city of Cananéia (25º03'05" e 25º18'18" S / 47º53'48" e 48º 05'42" W). The soil samples were collect at a depth of 0-10 cm, where concentrate 70% of vegetation root system. Was studied an additive model to evaluate soil quality index. The shallow root system development occurs due to low calcium levels, whose disability limits their development, but also can reflect on delay, restriction or even in the failure of the development vegetation. The organic matter is kept in the soil restinga ecosystem by high acidity, which reduces the decomposition of soil organic matter, which is very poor in nutrients. The base saturation, less than 10, was low due to low amounts of Na, K, Ca and Mg, indicating low nutritional reserve into the soil, due to very high rainfall and sandy texture, resulting in high saturation values for aluminum. Considering the critical threshold to 3% organic matter and for aluminum saturation to 40%, the IQS ranged from 0.95 to 0.1 as increased aluminum saturation and decreased the soil organic matter, indicating the main limitation to the growth of plants in this type of soil, when deforested.