COMPOSITION AND DIVERSITY OF ARBOREAL COMPONENT ALONG A HILLSIDE IN THE ATLANTIC RAINFOREST, UBATUBA, BRAZIL

Theme: Impacts of Local and Global Changes on the Atlantic Rain Forest

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The emergence and evolution of key adaptations are essential to allow species use available resources into new adaptive zones. This ability has implications in defining the geographical distribution of plant species, which may result from factors related to physical environment where these species evolved. One of the factors related to the physical environment that has had most focus in vegetation science is altitudinal variation. As part of the Thematic Project "BIOTA Gradiente Funcional", we aimed to evaluate the distribution and diversity of arboreal component (DBH$\geq$4.8 cm) along an altitudinal variation (from 56 to 375m asl) in the Submontane Atlantic Rainforest of the Serra do Mar, Ubatuba, São Paulo State, Brazil, sampling seven areas (100 x 100 m each one). We analyzed the species distribution by ordination (using Detrended Correspondence Analysis – DCA) and Mantel test. We also correlated floristic diversity (Simpson's index and richness) with the altitudinal variation applying Spearman's rank correlation (r_s) test. These seven areas totalized 414 species in 170 genera and 63 families. The richest family was Myrtaceae, with 91 species, followed by Rubiaceae (42) and Fabaceae (30). DCA ordination indicated that species are replaced constantly, but in a pattern not entirely related to altitude. Actually, there was basically a prevalence of the same families along the hillside (Myrtaceae, Rubiaceae and Fabaceae), with its species apparently replacing themselves in a non-defined direction. There was no significative correlation ($p>0.05$) between species similarity and geographic distance by Mantel test. While the species diversity has not shown significant correlation with altitude ($r_s = 0.57$), the same did not happen to genera ($r_s = 0.82$) and families ($r_s = 0.78$) diversity ($p<0.05$ in Spearman's rank correlation test). These results and some preliminar data from our project lead us to contemplate some possibilities: i) probably factors such as soil, topography, rainfall, temperature and biotic interactions are acting together on each species, leading them to produce a particular response, agreeing to Gleason's classic theory; ii) the hillside would present a floristic diversity peak at intermediate altitudes, perhaps associated with the Mid-Domain Effect model; iii) diversity could be responding to a number of factors other than altitude, particularly topography, which could be increasing the species coexistence in some areas; iv) these environmental factors could act in different evolutionary scales, since we found different responses in the levels of family, genera and species. (FAPESP, CAPES, CNPq)

Key words: altitudinal variation, multivariate analysis, species distribution