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PHYLOGENETIC STRUCTURE OF PLANT COMMUNITIES ON INSELBERGS IN THE STATE OF ESPÍRITO SANTO, BRAZIL

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The presence of Inselberg in the mountainous region is one of the most common geomorphic features in the land scape of the Espírito Santo State, whose environmental characteristics differ dramatically from your surroundings, dimensions are restricted and locations are often difficult to access. Thus, this study aimed to analyze the phylogenetic structure within and among Inselberg communities. We sampled four sites (Águia Branca (AB) in the municipality of Águia Branca; APA Pedra do Elefante (PE) in Nova Venécia; Forno Grande State Park (FG) in Castelo and Pedra de Pontões (PP) in Mimoso do Sul). For computation of phylogenetic indexes (NRI -net relatedness index and NTI - nearest taxon distance) within and among communities, megatree R20160415.new based on APG IV was pruned to all taxa from the dataset by the Phylocom 4.2 package. The significance of patterns (clustering or overdispersion) to both indexes and their comparisons within sites were calculated by Wilcoxon Rank Signed Test and Mann-Whitney, respectively. The predominant significant phylogenetic pattern for both indexes (NRI – older clades and NTI – terminal clades) was phylogenetic overdispersion found to AB (NRI = -0.02; NTI = -0.03) and PE (NRI = -0.45; NTI = -0.43). Conversely, FG showed significant phylogenetic clustering to the older clades (NRI = 0.06). It was not found significant differences between the means of the indexes within the sites. These findings suggest that causal factors of phylogenetic overdispersion (e.g. convergent evolution of traits, competition, herbivory, pathogens or facilitation) are the most common drivers of the community assembly in the study sites. Secondly, factors such as environmental filtering (e.g. altitude, wind, lower temperature) cause clustering of functional and phylogenetically close species. The observed overdispersion seem act in a more balanced or overlapped way on older and terminal clades, since there were no significant differences between the indexes within the sites.

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