Mistletoe on Novel Hosts

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Desert mistletoe (Phoradendron californicum) is a parasitic plant most frequently infecting plants belonging to the Fabaceae family, and concurrently responsible for extensive diversity in the Mojave and Sonoran deserts. Desert mistletoe have developed two major host-races,adapted to Velvet Mesquite (Prosopis velutina) and Catclaw Acacia (Senegalia greggii). Despite its prevalence on the two major host species, individual mistletoe plants have also been observed on hosts such as creosote (Larrea tridentata). To determine if the ancestry of 11 individuals collected from creosote hosts can be traced back to a more common host of desert mistletoe, microsatellites were analyzed. DNA was extracted from 11 individuals and PCR was performed using 10 different pairs of primers. The PCR samples were then submitted to the University Genomics Core for fragment analysis. Peaks in the data were called using the Genious DNA analysis software package, and a STRUCTURE analysis followed. Results unambiguously demonstrated that all 11 mistletoe individuals aligned with the acacia host-race population, suggesting flexibility and pre-adaptation to inhabit creosote in the acacia host-race population but not in the mesquite host-race population. These data will allow for a more comprehensive understanding of the methods of mistletoe population structure and adaptation to host plants, enabling efficient coexistence between mistletoe, humans, and the organisms contingent on its presence in the ecosystem.