

GENETIC SIMILARITY NETWORKS IN CLONAL PLANT POPULATIONS

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We analyze genetic distances between biological organisms and populations in terms of *networks of genetic similarity*. We illustrate our approach by applying it to genetic data from the Mediterranean marine plant *Posidonia oceanica*, consisting on chromosomal microsatellite repetitions. We define a new genetic distance between individuals that takes into account both the clonal and the sexual modes of reproduction. We use that distance to construct similarity networks and trees, and study their topology. We also characterize the probability distributions of genetic distances. When imposing a distance threshold to link individuals, the resulting network is characterized by a strongly hierarchical structure and the *small world property*. Different shapes of the degree distributions appear for different thresholds. Weak and strong genotypes and populations are identified with network theory tools.

[1] A. F. Rozenfeld, S. Arnaud-Haond, E. Hernández-García, V. M. Eguíluz, M. A. Matías, E. Serrão and C. M. Duarte, Spectrum of genetic diversity and networks of clonal plant populations, arXiv e-print q-bio.PE/0605050 (2006).