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ADAPTIVE DNA GENETIC DIVERGENCE IN WILD BARLEY, *HORDEUM SPONTANEUM*, CAUSED BY MICROCLIMATIC DIFFERENTIAL STRESS AT "EVOLUTION CANYON", LOWER NAHAL OREN, MT. CARMEL, ISRAEL.

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Genetic diversity was studied in six subpopulations of wild barley, *Hordeum spontaneum*, sampled from six stations located along a transect of 300m across the two opposing slopes of "Evolution Canyon", a Mediterranean microsite at lower Nahal Oren, Mt. Carmel, Israel. The two opposing slopes are separated by 100 and 400 m at bottom and top, respectively. The designated SFS (South-Facing Slope) and NFS (North-Facing Slope), each having three equidistant stations respectively. The SFS, receives up to 300% more solar radiation, is drier, ecologically more heterogeneous, fluctuating, hence more stressful than the NFS. Analysis of 51 putative RAPD loci revealed a significant inter- and intra-slope variation in polymorphism (P), and higher on the SFS (mean $P=0.909$ than on the NFS (mean $P=0.682$). Polymorphism generally increased upwards from bottom to top on the SFS (0.636, 0.773, 0.955) and NFS (0.409, 0.500, 0.545), respectively. Gametic phase disequilibria (D) revealed SFS and NFS slope-specific combinations indicating diversifying selection for genetic diversity and gametic phase disequilibria at $D>0.060$ criterion. RAPD polymorphism appears to be adaptive and driven by natural selection paralleling allozyme diversity for the same subpopulations at the microsite.

