

We carried out a population genetic study of 14 populations (692 plants characterised at 23 microsatellite loci) of the plant species *Antirrhinum majus* L. (Plantaginaceae) across its geographic range. Our results showed that populations of *A. majus* are genetically differentiated and genetically diverse. We also found a small but statistically significant genetic differentiation between *A. majus* subspecies *pseudomajus* and *striatum*. Genetic diversity was higher in *A. majus* subspecies *pseudomajus*. Geographic distance and both latitudinal and longitudinal coordinates had no impact on genetic differentiation and diversity. We therefore did not find any signature of geographical range expansion. Mountains were found to play a role by affecting a small but statistically significant amount of genetic differentiation between populations. Our findings thereby suggest that most *A. majus* populations are reproductively isolated, and that the landscape and the evolutionary history of species affected their genetic variation.