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## POPULATION GENETICS OF MEXICAN OREGANO POPULATIONS

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**Introduction.** *Lippia berlandieri* Schauer is the most distributed oregano specie in México and has stronger smell and taste than the European counterpart (1). In recent years, there is a need to industrialize specific genotypes of this specie, given its agronomical and economical importance; therefore, it is important to develop a Mexican oregano germoplasm conservation program, but there is a lack of information on Mexican oregano genetic characterization.

The aim of this study was to study the population genetics of eight wild populations of *Lippia berlandieri* Schauer from the state of Chihuahua, México.

**Methods.** Seeds from eight wild oregano populations were obtained from the central and south part of the state of Chihuahua, Mexico; the number of samples was determined according to the oregano density of each area. DNA was isolated from seeds following the protocol reported by (2). The AFLP procedure was carried out following the suggestions of the LICOR<sup>®</sup> kit manual. A binary matrix (1 = presence, 0 = absence) was prepared based on the band patterns. Data were introduced in the Info-Gen software to determine population genetic parameters of the oregano populations.

**Results.** AFLP analysis in this study included 48 samples (6 per each of the 8 collects), with 121 polymorphic bands. The values of the polymorphic loci (Table 1) show values ranging from 0.413 (D5) to 0.620 (D3), while total value of polymorphic loci was 0.769 (3).

**Table 1.** Genetic variability descriptors of *Lippia berlandieri* Schauer

Statistic	D 8	D 7	D 5	D 3	D 2	S 2	S 3	N 2	Total
Polymorphic loci	0.46	0.43	0.41	0.62	0.57	0.51	0.59	0.56	0.76
Genetic diversity	0.16	0.15	0.14	0.21	0.21	0.16	0.20	0.20	0.21
Unbiased heterozygosity (Nei)	0.17	0.16	0.16	0.23	0.23	0.18	0.22	0.22	0.21
Allele average	1.46	1.43	1.41	1.62	1.57	1.51	1.59	1.56	2.00
Effective allele	1.26	1.25	1.24	1.35	1.36	1.26	1.34	1.33	1.32

D = Delicias; S = Saltaices; N = Naica

Wright's F values obtained in the present study are showed in Table 2.  $F_{ST}$  value shows the extent of genetic variation in the sub population in relation to the total variation. The D3, D2, S3 and N2 populations were grouped although they are from different locations; S2 population was classified with moderate differences; D8 and D7 populations were grouped into big differences and finally D5 population was classified as much different.  $F_{IS}$  values were close to 0; while  $F_{IT}$  results are in a wide range (0.0046 to 0.3288) which forms two groups: populations in HW equilibrium (D3, D2, S3 and N2) and populations with deficit of heterozygotes (D8, D7, D5 and S2).

**Table 2.** Wright's F statistics values

Coefficient	D8	D7	D5	D3	D2	S2	S3	N2
$F_{ST}$	0.200	0.232	0.269	0.000	0.000	0.159	0.000	0.000
$F_{IS}$	0.080	0.083	0.081	0.084	0.085	0.081	0.083	0.081
$F_{IT}$	0.264	0.296	0.328	0.004	0.022	0.228	0.045	0.077

**Conclusions.** The analyzed data of wild oregano populations from the Central and South region of the state of Chihuahua suggest that there is high genetic diversity and gene flow, probably due to pollinators. Also it is suggested that oregano cross-pollination is done mainly by insects. Analysis of  $F_{IS}$  of Wright's statistics showed that *Lippia berlandieri* Schauer plants from the Chihuahua regions are not self-pollinating.

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