Genetic diversity of *Tetraclinis articulata* revealed by ISSR markers

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**Context**

Preservation of natural resources remains the most current concern under climate change. In addition, the assessment of genetic variability is the first step in evaluating the long-term conservation status of species in natural conditions (González-Astorga et al., 2004). *Tetraclinis articulata* (Vahl) Masters, endemic to North Africa and southern Spain, is a multifunction coniferous, suffering from perpetual decline. So, as a natural and genetic resource, its preservation remains important and urgent.

**Objective**

The aim of this study is to evaluate the genetic diversity of *T. articulata* by Inter-simple sequence repeats (ISSR) and develop innovative conservation management plans.

**Sample collection and DNA extraction**

49 « Tree Plus » from 5 provenances

DNA extraction protocole

**DNA amplification for ISSR and data analysis**

DNA pure

PCR-ISSR

Electrophoresis in agarose gel

GelCompare (v2.5)
GenAlex (v 6.5)
Popgen (v 1.32)

**Genetic diversity and genetic differentiation**

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<tbody>
<tr>
<td>PB%</td>
<td>61.48</td>
<td>78.28</td>
<td>76.02</td>
<td>55.12</td>
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PB%: % of Polymorphic Bands at population level

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<thead>
<tr>
<th>PB%</th>
<th>Gst</th>
<th>Nm</th>
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<tr>
<td>99.59</td>
<td>0.137</td>
<td>3.12</td>
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PB%: % of Polymorphic Bands at species level

Gst : Genetic differentiation index
Nm : Gene flow

**Conclusions**

- Gst and Nm are slightly similar to results found with *Thuja sutchuenensis* Franch but in general, geographically widespread species tend to maintain high genetic diversity (Liu et al., 2013).
- The AMOVA results are confirmed by the high level of Nm. Geographic isolation is one major factor influencing genetic differentiation by limiting the amount of gene flow via both pollen and seeds (Pfeifer et al., 2006).
- The present work strengthens the use of ISSR markers to assess genetic diversity of coniferous. The results must be supported by an important number of samples covering the whole range of Moroccan *T. articulata* to spot genetic diversity pools and to establish conservation plans in their regional provenances.

**References**

