Agrobiodiversity in mountain oases of northern Oman

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Introduction

Several botanical studies have been conducted in different parts of Oman, but little is known about agrobiodiversity in the complex mountain oasis systems of the northern part of the country.

Materials and Methods

A survey was conducted to assess the crop diversity of three mountain oases in the al-Hajar range using a GIS-based field survey and farmer interviews. While arid conditions prevail throughout the mountain range, the different elevations of Balad Seet, Maqta and Al Jabal al Akhdar (Fig. 1) provide markedly differing agro-climatic conditions.

Balad Seet (950-1020 m a.s.l.) | Maqta (930-1180 m a.s.l.) | Al Jabal al Akhdar (1750-1930 m a.s.l.)

Figure 1. Panoramic views of the study oases in northern Oman.

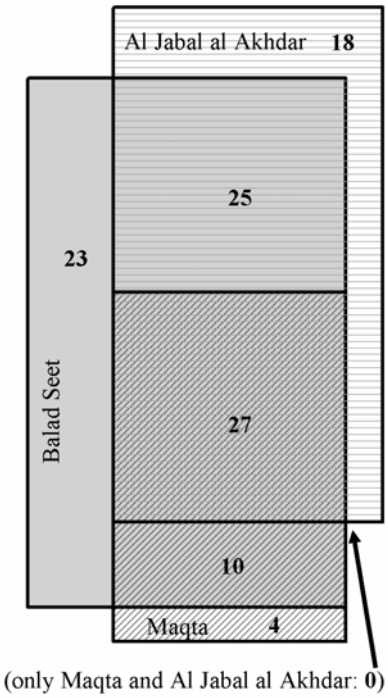

Figure 2. Species distribution among the three oases. The areas shown in the graph are proportional to the relative numbers of species.

Results

- 107 different crop species were identified belonging to 39 families
- number of species varied significantly between sites (Fig. 2)
- diversity was highest among fruits (33 spp., Fig. 3)
- several relict crops were identified (evidence of genetic erosion)
- species, such as the temperate fruits of Al Jabal al Akhdar, were exclusively found at the coolest site
- at all oases a multilayered vegetation structure dominated
- remote Omani oases are also an important refuge for indigenous wild plant species, such as *Epipactis veratrifolia* Boiss. & Hohen. ex Boiss (Fig. 4)

Figure 4. The endangered orchid *Epipactis veratrifolia* Boiss. & Hohen. ex Boiss flowering in an isolated part of the oasis Maqta.

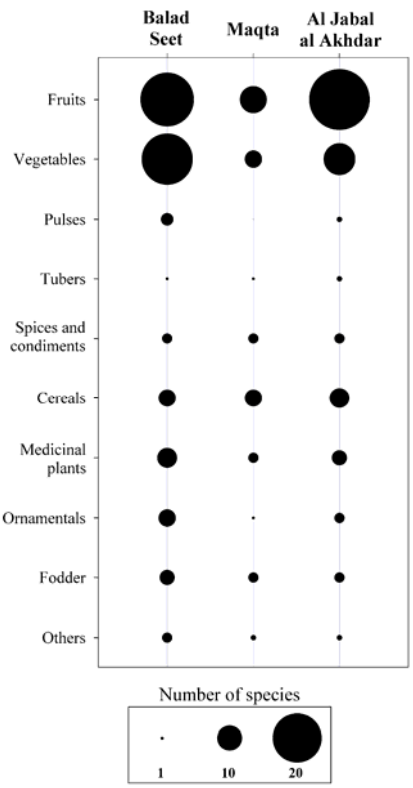

Figure 3. Plant species of different use categories of the three oases in northern Oman.

Conclusions

The study shows a location-specific but surprisingly diverse mosaic of crops in Omani mountain oases. To document the agrobiodiversity of Oman, assessments in more of the numerous Omani mountain oases are needed. Furthermore, follow-up visits to Balad Seet, Maqta and Al Jabal al Akhdar will be critical to document the transformation processes in these oases and to determine the pace of genetic erosion.intensity from 2 to 4 positions caused an increase of resin by 25%.

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