



Contents lists available at ScienceDirect

Quaternary International

journal homepage: www.elsevier.com/locate/quaint

History and archaeology of the emblematic argan tree in the medieval Anti-Atlas Mountains (Morocco)



Marie-Pierre Ruas ^{a, *}, Jérôme Ros ^a, Jean-Frédéric Terral ^b, Sarah Ivorra ^b,
Hélène Andrianarinosy ^a, Ahmed S. Ettahiri ^c, Abdallah Fili ^d, Jean-Pierre Van Staëvel ^e

^a Archéozoologie, Archéobotanique: Sociétés, Pratiques et Environnements (AASPE, UMR 7209), CNRS, Muséum national d'Histoire naturelle, Sorbonne Universités, CP56, 55 rue Buffon, 75005 Paris, France

^b Institut des Sciences de l'Évolution (ISEM, UMR 5554), CNRS, Université Montpellier, 34095 Montpellier, France

^c Institut National des Sciences de l'Archéologie et du Patrimoine, Département d'archéologie islamique, Madinat Al-Irfane, Hay ar-Riyad, Angle rues 5 et 7, Rabat-Instituts, 10100 Rabat, Morocco

^d Faculté des lettres et des sciences humaines de l'Université Chouaib Doukkali, Université Al Jadida, 2 avenue Med Ben Larbi Alaoui, B.P. 299, 24000 El Jadida, Morocco

^e Orient et Méditerranée, textes-archéologie-histoire (UMR 8167), Université Paris-Sorbonne IV, Université Paris I, CNRS, EPHE, Collège de France, Musée du Louvre, Sorbonne Universités, 17 rue de la Sorbonne, 75231 Paris cedex 05, France

ARTICLE INFO

Article history:

Available online 21 October 2015

Keywords:

Archaeobotany
Argan forest
Ethnobotany
Middle ages
Morocco
Mountains

ABSTRACT

The argan tree [*Argania spinosa* (L.) Skeel.] is a spontaneous and xerophilous species endemic to south-western Morocco and the only representative species of the tropical Sapotaceae family in the country. It forms well-developed woodlands in the plain of Souss and open steppic vegetation on the semi-arid slopes of the Anti-Atlas Mountains. Currently, wild and managed argan trees are a staple firewood and timber resource, leaves and fruit are used for fodder and oil from the seeds for daily food. In the Anti-Atlas southeast of Taroudant, various tree growth forms can be observed in keeping with local management practices. We developed interdisciplinary research in this area by studying the bio-archaeological remains from the medieval site of Igliz in conjunction with current farming practices in the neighbouring village of Tifigit. A plant inventory of 96 taxa was recorded from the archaeobotanical remains, including 13 wild and cultivated tree species and eight herbaceous crops (cereals, pulses, vegetables, condiments and fruit). The charred wood and seeds of *Argania spinosa* predominated in a wide range of contexts, indicating the major role of this species in the 10th–13th century economy. The ethnobotanical survey focused on the exploitation of argan trees and argan oil extraction techniques. In this paper, we discuss the past and present-day role of the argan tree in the agro-pastoral economy of the mountain hinterland.

© 2015 Elsevier Ltd and INQUA. All rights reserved.

1. Introduction

Argania spinosa (L.) Skeels [syn. *Argania sideroxylon* Roem. & Schult., *Elearandron argan* Retz., *Sideroxylon spinosum* L.] is a xerophilous and endemic species and the only representative species of the tropical Sapotaceae family in Morocco. It is widely distributed from sea level up to 1300–1500 m a.s.l., and forms particularly well-developed woodlands on the Essaouira and Souss plains near the Atlantic coast, and rather open vegetation in the

Anti-Atlas and the High Atlas area. A palynological marine sediment core taken off the shore of Agadir at Cape Ghir showed that all the woodlands observed in these areas today result from a long history of agro-pastoral activities in which the argan tree played a major role (McGregor et al., 2009). However, between the middle of the 19th century A.D. and the Second World War, the argan tree forest decreased significantly in Morocco, as the wood was intensively transformed into charcoal. This massive and drastic exploitation unbalanced the ecosystem, maintained by local human populations up until then through forest management in line with farming and pastoral practices (Boudy, 1950). The recent increase in the argan oil trade for cosmetic and food exports, as well as the poor state of natural vegetation heritage, led to genetic and

* Corresponding author. UMR 7209, Muséum national d'Histoire naturelle, CP56, 55 rue Buffon, 75005 Paris, France.

E-mail address: ruas@mnhn.fr (M.-P. Ruas).

agronomic research initiated by the government of Morocco almost 35 years ago (Charrouf and Guillaume, 2014). This research aims to repopulate the degraded forest and to set up argan tree orchards. Today, this example has led to the early stages of a domestication process which should contribute to the development of cultivated varieties (Bellefontaine, 2010), to be exploited by mechanized fruit processing.

The huge ecological, economic and cultural importance of the argan tree at the present time in south-western Morocco has been widely studied by botanists, agronomists and ethnologists (Charrouf and Guillaume, 1999; Msanda et al., 2005; Simenel et al., 2009), but the history of argan exploitation and use during early times has been documented by very few written Arabic sources. Through the investigation of archaeological sites, using field and laboratory techniques, archaeobotany has the potential to provide insights into questions of past plant management and use. Up until now, published current archaeobotanical and ethno-archaeological investigations have yielded information from the north-western region (Ruas et al., 2011). In the southern part of the country, no archaeobotanical data were available from archaeological sites before the excavation of the medieval site of Ġġilīz, located in the biogeographic area of the argan tree.

Excavations have been carried out at Ġġilīz for the past ten years and are part of a French–Moroccan cooperation research program directed by A. S. Ettahiri, A. Fili and J.-P. Van Staëvel. The program examines the evolution of the population of the Souss Valley and the Atlas foothills during the Middle Ages and pre-Modern times (Ettahiri et al., 2011). This was accompanied by an archaeobotanical approach from the beginning of the excavations, revealing the first and oldest argan remains in Morocco, resulting from the daily activities of past populations (Ruas et al., 2011). This region provided us with the opportunity to observe some interesting techniques still practiced in the neighbouring village of Tifigit, located at 1280 m a.s.l. on the slope opposite the archaeological site. There, inhabitants still use non-mechanized techniques for some of their economic daily activities: crop farming, argan oil extraction, foddering, fuel and building. These practices provided us with a rich and unexpected scientific opportunity, allowing us to directly examine the plant processing sequence and to compare product and by-product composition with medieval archaeobotanical assemblages.

In this paper, we will focus on the Jebel Ġġilīz area by describing some results from the HARGANA project, including studies of archaeobotanical macro-remains (carpology, xylo-anthrology), archaeological features (tools, pottery, structures), medieval written sources and an ethnobotanical survey of argan oil extraction techniques and argan tree management. The aim is to examine which types of argan products were used by medieval and present-day village inhabitants and the possible relationships between argan tree population management and the economic and ecological status of these trees.

2. Regional setting

2.1. Archaeological and historical background

Despite several attempts by academics and historians during the twentieth century, the site of Ġġilīz, the birthplace of the Almohad Empire (A.D. 1120–1269), was not precisely located and explored until 2004 (Van Staëvel and Fili, 2006a,b; Ettahiri et al., 2013a,b). Based on the examination and analysis of medieval texts and pre-modern historiographical studies relating to the history of the Islamic Morocco, A. Fili and J.-P. Van Staëvel succeeded in identifying the site and conducted the first archaeological exploration of its remains. The results and data from this site led to the development

of a broad and ambitious multidisciplinary archaeological project which began in 2009 (Ettahiri et al., 2011, 2013a,b).

The famous site of Tinmal in the High Atlas overshadowed Ġġilīz for a long time in Almohad historiography, relegating it to second-class rank (Basset and Terrasse, 1932; Ewert and Wisshak, 1984). On account of its proximity to Marrakech and the unparalleled prestige attached to the tomb of al-Mahdi Ibn Tūmart, the initiator of Almohadism, Tinmal was considered, from the beginning of the Empire, as a centre piece in the new dynasty (Buresi, 2010). According to chronicles, Ibn Tūmart and his troops arrived and settled there in 1125 from the neighbouring region of Souss. Nevertheless, a first phase preceded Ibn Tūmart's installation in Tinmal, in the southwestern region of Souss, in the Anti-Atlas Mountains.

The ruins of Ġġilīz spread over two Anti-Atlas ridges, 1354 m above sea level, and 68 km southeast of the city of Taroudant (Fig. 1). Ġġilīz is the homeland of Ibn Tūmart and appeared in A.D. 515/1120–1121 as the epicentre of the Almohad movement. Thus his religious initiation undoubtedly occurred here.

The central part of the site is located at the top of Jebel Ġġilīz, a rocky and arid landscape. The valley provides the only green vegetation due to the presence of the Arghan wadi, irrigating all the crops from villages along its banks (Fig. 2a, b). The site is a rural mountain fortress, surrounded by double fortification walls. It was a large, well-organized and hierarchized settlement containing buildings for religious, political and economic purposes, as well as several groups of houses (called “sectors” in this paper). The low and high walls were opened by three gates. Entrances 1 and 2 led to groups of houses probably inhabited by peasants. The stone buildings were organized on the lower slopes, dominated by a complex of uppermost buildings: the Qasba, or residence of central power. It included reception and living rooms, domestic processing areas and a water room. This group of rooms was enclosed in the low courtyard with utilitarian uses. Other sectors (or quarters) included the three mosques (with a bigger Mosque 1), the Mhadra, which was probably the student housing area, two cellars and other groups of habitats (Fig. 2c). Throughout the 12th century A.D., a community of devout and pious men, women and students gathered around the religious leader, warriors and farmers/shepherds.

2.2. Present-day local vegetation and crops

The geographic region of interest, situated between 750 and 1600 m a.s.l., includes the valley floor where the modern village of Magenoune is located in the Arghane Valley (*assif Arghane*), Ġġilīz Mountain (so-called “Jebel Ġġilīz”) and the village territory of Tifigit (Fig. 2). General climatic conditions in the area are considered to be arid to semi-arid. However, orographic lifting plays an important role in local precipitation rates (Knippertz et al., 2003). From the Souss Plain (Agadir) to the Anti-Atlas (Igherm), annual rainfall varies between 150 and 250 mm, whereas it can reach 400–600 mm per year in the Atlas range. Present-day vegetation belongs to the Mediterranean–Saharan transition (infra- and thermo-Mediterranean), consisting of steppic shrub lands mostly dominated by the endemic species *Argania spinosa*. The northern slopes are covered by scrub vegetation, mainly made up of *Artemisia herba-alba*, characteristic of a bioclimate with annual rainfall of around 200–300 mm (Msanda et al., 2002). Existing local landscapes were formed both by environmental factors (climate, soil, altitude etc.) and the impact of human land practices over at least the last 1300 years, in particular through overgrazing by sheep and goat herds (McGregor et al., 2009).

Barley is the main cultivated cereal and the only one sown in the small open fields on the dry terraced slope in front of the village of Tifigit. Other crops consist of maize and various fruit trees, which

Download English Version:

<https://daneshyari.com/en/article/1040198>

Download Persian Version:

<https://daneshyari.com/article/1040198>

[Daneshyari.com](https://daneshyari.com)