



The aeropalynology of Es-Sénia airport, Oran, northwest Algeria

Ghania Kiared (Ould-Amara), Mostefa Bessedik & James B. Riding

To cite this article: Ghania Kiared (Ould-Amara), Mostefa Bessedik & James B. Riding (2016): The aeropalynology of Es-Sénia airport, Oran, northwest Algeria, *Palynology*, DOI: [10.1080/01916122.2015.1112944](https://doi.org/10.1080/01916122.2015.1112944)

To link to this article: <http://dx.doi.org/10.1080/01916122.2015.1112944>



Accepted author version posted online: 27 Oct 2015.
Published online: 22 Feb 2016.



Submit your article to this journal [↗](#)



Article views: 29



View related articles [↗](#)



View Crossmark data [↗](#)

The aeropalynology of Es-Sénia airport, Oran, northwest Algeria

Ghania Kiared (Ould-Amara)^a, Mostefa Bessedik^b and James B. Riding^{c*}

^aDepartment of Pharmacy, Faculty of Medicine, University of Algiers, 18 Avenue Pasteur, 16000 Algiers, Algeria;

^bPalaeoenvironment and Stratigraphical Palaeontology Laboratory, University of Oran Es-Sénia 2, 31000 Oran, Algeria;

^cBritish Geological Survey, Environmental Science Centre, Keyworth, Nottingham NG12 5GG, United Kingdom

A continuous study of atmospheric pollen in Oran Province, northwest Algeria, using the Cour method was undertaken between April 2004 and April 2006. A pollen-collecting device was placed in the meteorological station at Es-Sénia airport, near Oran city. It was found that the pollen harvest during the first year was 4230 grains, which is significantly higher than that in the second year which produced 2258 grains. These data gave a mean annual index of 3246 pollen grains, 99.7% of which were positively identified. Pollen from herbaceous plants (69.5%) proved significantly more abundant than arboreal and shrub pollen (27.9 and 2.3% respectively). The pollen types identified, in decreasing order of abundance, were Chenopodiaceae/Amaranthaceae, *Plantago*, *Olea*, wild Poaceae, *Lygeum*, Cupressaceae, Urticaceae, *Quercus*, *Pinus*, total Asteraceae, *Eucalyptus*, Brassicaceae, *Casuarina*, *Pistacia*, Arecaceae, Apiaceae, Thymelaeaceae and *Rumex*. The abundance range was Chenopodiaceae/Amaranthaceae (41.4%) to *Rumex* (0.6%). The winter pollen spectrum largely comprised Arecaceae and Cupressaceae. Pollination during spring included most taxa, i.e. total Asteraceae, Brassicaceae, Chenopodiaceae/Amaranthaceae, *Lygeum*, *Olea*, *Pinus*, *Pistacia*, *Plantago*, wild Poaceae, *Quercus*, *Rumex* and Urticaceae. During the summer Apiaceae and *Eucalyptus* both pollinated, and *Casuarina* pollen was largely produced in autumn. A significant correspondence between the airborne pollen spectrum and the vegetation of the region was established.

Keywords: aeropalynology; Cour method; pollen calendar; Oran Province; northwest Algeria

1. Introduction

The analysis of atmospheric pollen provides information on the periodic cycles (phenology) exhibited by anemophilous (wind-pollinated) plants. It also helps to predict crop yields, aids the evaluation of climate change effects on floras at both local and regional scales (Gage et al. 1999; García-Mozo et al. 2006; Galán et al. 2008) and informs the public about levels of allergenic pollen (D'Amato et al. 2007). Anemophilous plants use wind to disperse their pollen, and produce large amounts of pollen in order to maintain biodiversity and sustainability. However, wind-borne pollen can cause allergic reactions in humans and animals and, during the last 30 years, pollen allergies have significantly increased (Bousquet et al. 2001).

The aeropalynology of Oran Province, northwest Algeria, was studied from 1977 to 1979 by Cambon (1981) using the Cour method (Cour 1974). Similar studies in the Algiers region of northern Algeria were undertaken from 1977 to 1979 by Korteby-Becila (1987) using the Durham method (Durham 1946), and by Gharnaout (2007) between 2001 and 2003 using the Hirst method (Hirst 1952). Other aeropalynological research in North Africa includes Aboulaich et al.

(2013) in Morocco using the Hirst method and Oteros et al. (2014) in Tunisia using the Cour method. Similar research has been done in the region immediately north of North Africa. These studies include Belmonte & Roure (1991) and Boi & Llorens (2013) in Spain, Calleja et al. (2002) in Lebanon, Rizzi-Longo et al. (2007) and Cristofori & Cristofori (2010) in Italy, and Bilisik et al. (2008) in Turkey.

In Europe and North America, the number of localities studied for aeropalynology since the 1970s has expanded significantly, especially after the adoption of a consistent sampling method (Hirst 1952) and the establishment of international and national networks. Other methodologies from before the standardisation of sampling methodologies in aeropalynological studies can still provide relevant data (Belmonte et al. 1988, 2000; Oteros et al. 2014).

The aim of this study was to determine the annual airborne pollen spectrum at Es-Sénia airport, near Oran city in northwest Algeria (Figure 1). This will allow the amount and diversity of airborne pollen, the pollination periods of the major taxa, the intensity of pollen emissions and the relationship between airborne pollen and the vegetation in the region to be evaluated.

*Corresponding author. Email: jbri@bgs.ac.uk