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(Algeria NE)*

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Abstract The diversity of airborne pollen grains in El-Hadjar town (northeast Algeria) was measured for 1 year, from July 1, 2012 to June 30, 2013, by means of the gravimetric method using Durham apparatus. The total number of pollen grains/cm² was calculated from slides that were changed daily. This aerobiological study documented the air concentration of pollen from 50 taxa, where 28 belonged to arboreal and 22 to non-arboreal taxa. The percentage of pollen from arboreal and non-arboreal taxa was 56 and 44 %, respectively. From the list, the major collected taxa causing allergy in humans dominant in the Mediterranean area were Cupressaceae (14.86 %), *Olea* sp. (7.18 %), *Casuarina* sp. (6.44 %), and *Fraxinus* sp. (3.83 %) among arboreal plants, whereas for the non-arboreal plants Poaceae (23.20 %), *Mercurialis* sp. (12.58 %), *Plantago* sp. (1.69 %), Urticaceae (0.95 %), and Chenopodiaceae (0.85 %). The highest pollen counts occurred in the period from February to April. The pollen calendar for the region presented in this paper may be a useful tool for allergologists and botanical awareness.

Keywords Pollen calendar · Pollen allergy · Aerobiology · Airborne pollen · Algeria

1 Introduction

Many grasses, trees, and weeds produce sufficient quantities of lightweight pollen to sensitize genetically susceptible individuals (Esch et al. 2001). Airborne pollen grains, which are produced in particular by anemogame plant species, are significant organic bioaerosols (Tosunoğlu et al. 2013); they are the most important source of allergens in the atmosphere (Çeter et al. 2012). Thus, pollen allergy is a seasonal disease, and its symptoms are associated with the presence in the abundance of airborne pollen grains (Piotrowska and Kaszewski 2009), where approximately 60–75 % of seasonal rhinitis patients have positive skin test reactions to weed pollens, 40 % to grass pollens, and 10 % to tree pollens (Esch et al. 2001). Airborne pollen and fungal spores are common triggers of type I IgE-mediated allergic reactions in patients with rhinitis and bronchial asthma (Al-Frayh et al. 1989). Subsequently, symptoms that normally affect most people with pollen allergy are sneezing, itching, nasal discharge, and ocular itching. (Sánchez-Mesa et al. 2005).

In each geographic area, there is a succession of different flowering species throughout the year, so it is important to document the timing, floral intensity, and types of airborne pollen in different locations,

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