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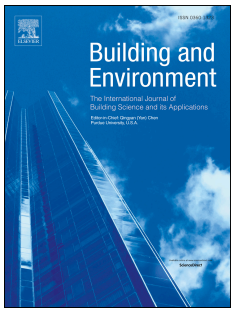

Is there an advantage to staying indoors for pollen allergy sufferers? Composition and quantitative aspects of the indoor pollen spectrum

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Is there an advantage to staying indoors for pollen allergy sufferers? Composition and quantitative aspects of the indoor pollen spectrum

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Abstract
The pollen content of the air in an office was assessed together with the dust on the floor and on the desktops as well as the pollen content outside of the building on rooftops and at ground level. The whole pollen spectrum was evaluated (35 different pollen types) with focus on the major aeroallergens. The air samples were measured with Hirst-type pollen traps and the dust samples were evaluated following guidelines in forensic palynology. The same time period was examined on four different sampling days: (1) during the winter as a reference day, (2) during the main pollination period of *Betula*, (3) during the main pollination period of Poaceae and (4) during the main pollination period of *Ambrosia*. Pollen concentrations were generally lower in indoor air than in outdoor air (except for the winter day), but showed associations with dust by containing non-seasonal pollen types as well as seasonal pollen. Staying indoors is recommended for pollen allergy sufferers, but does not grant the absence of pollen or the total avoidance of symptoms. Results indicate that persons concerned should keep in mind being confronted with pollen in certain amounts throughout the year indoors in built environment.

Keywords
Pollen spectrum; pollen concentrations; dust samples; indoor air; outdoor air

Abbreviations
INR, identified, not relevant pollen; EAN, European Aeroallergen Network; Tmax, maximum temperature; Tmin, minimum temperature; ZAMG, Zentralanstalt für Meteorologie und Geodynamik

1. Introduction

Pollen allergy is a considerable global health problem that is still increasing, of substantial socio-economic impact in terms of direct (social system costs, medication, treatment, hospital visits) and indirect (e.g. days off from work, reduced productivity) costs in the health sector and affects the quality of life of persons concerned [1]. About one eight (approximately one million people) of the Austrian population suffers from a pollen allergy [2]. A study on 13719 atopic patients in Eastern Austria (Lower Austria and Vienna) revealed a calculated mean prevalence of 56% for grass pollen allergy, 42% for birch pollen allergy and 11% for ragweed pollen allergy, as well as other major causes of allergy like house dust mites and animal dander [3]. One of the pillars in allergy treatment is allergen avoidance. Allergen avoidance plays a key role for pollen allergy sufferers [4] and is the main mission of