



Contribution ID: 7

Type: **not specified**

Allergenicity of Cupressales pollen grains.

Wednesday, 31 January 2024 17:00 (15 minutes)

Cupressales pollen is a significant cause of seasonal allergies worldwide. The dramatic increase in the concentration of Cupressales pollen is observed in Poznań (Western Poland) during last 25 years. Plant genera belonging to the Cupressales order, including Juniperus, Thuja, and Taxus, produce pollen grains that are morphologically indistinguishable. Consequently, it is unclear how various species contribute to the overall Cupressales pollen load in the air. Furthermore, there is a lack of data regarding the allergenicity of pollen from different Cupressales species.

The aim of the study was to determine the variation in the occurrence of homologues of the main allergen of cypress pollen grains, i.e. Cup a 1, in Cupressales order. In addition, the phenological pattern of flowering of selected species from Cupressales has been determined. Pollen grains were collected during the 2023 pollen season (between February and May) and Cup a 1 was quantified by immunoenzymatic test ELISA. The protein content in the pollen grains was expressed in pg Cup a 1/pollen grain. Collected phenological data allowed to prepared the first pollen calendar for Poznań for plants of the order Cupressales.

The content of Cup a 1-homologue varied widely, from 0.004 pg/zp. in *Ch. lawsoniana* to 2.432 pg/zp. in *Ch. nootkatensis*. In some species (*T. occidentalis*, *T. cuspidata*, *C. japonica*) the ELISA test did not detect the Cup a 1-homologues. The genus *Juniperus* showed the most similar and relatively high Cup a 1-homologue content. The 2023 Cupressales pollen season in Poznań began on 4th of March, ended on 11th of May and lasted 69 days. *T. baccata* began to flower the earliest, followed by *T. occidentalis* and *T. plicata*, then *J. sabina*, *Ch. lawsoniana* and finally *J. communis*.

The study showed that the allergenicity of Cupressales species is subjected to high variation and the species contributed the most to total pollen level are *T. baccata*, *T. plicata* and *T. occidentalis*. To accurately determine the allergenic potential of individual species within the order Cupressales, further analyses should focus on estimating the pollen production by the species, their distribution in the city and determining the influence of climatic factors on the Cup a 1-homologues level

Primary author: WIECZOREK, Oliwia (Adam Mickiewicz University Poznan, Faculty of Biology)

Co-authors: SZYMAŃSKA, Agata (Adam Mickiewicz University Poznan, Faculty of Biology); GREWLING, Lukasz (Laboratory of Aerobiology, Department of Systematic and Environmental Botany, Faculty of Biology, Adam Mickiewicz University, Poznan, Poland)

Presenter: WIECZOREK, Oliwia (Adam Mickiewicz University Poznan, Faculty of Biology)