

NEW POLLEN INDEX FOR CHARACTERIZING POPULATION EXPOSURE TO AIRBORNE POLLEN LOAD AT DIFFERENT GEOGRAPHICAL LEVELS

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Background and Aims: The ongoing spread of *Ambrosia artemisiifolia* in Europe is an increasing problem for human health and as an agricultural and non-agricultural weed. Hungarian Aerobiological Network (HAN) has monitored the airborne pollen of ragweed for 18 years, these data are a sound basis to create indicators to monitor the changes of the ragweed pollen season in time and space and the population exposure.

Methods: HAN has 18 monitoring sites out of which 8 sites were selected being representative for the characteristic macroclimate types of the country. The relevant population was defined as the population living around the monitoring site in a circle of 17.5 km. The start and end of the pollen season (1% resp. 99% of cumulative daily pollen count) was defined, daily pollen concentration were categorised into 7 groups (0-9, 10-29, 30-99, 100-299, 300-499, ≥ 500 pollen grains/m³ resp. missing value).

Two sub-indices were defined and computed by year. Rate of time of population exposure to pollen concentration categories (TR) and rate of population (PR) exposed to different categories of daily pollen concentration at selected monitoring sites during the pollen season TR(x) and PR(x) indicate, what percentage of the total population is exposed to a given pollen concentration category (x) in what percentage of days of the total pollen season.

Results: Based on selected pollen data for 2010, 52.2% of the population was exposed to daily pollen concentration over 30 grains/m³ (evoking allergic symptoms in every patient) during 40.8% of days of the season (32 days). 3.7% of the population was exposed to ≥ 500 grains/m³ (extremely high category) for 4.8% of days.

Conclusions: In the future the indices can be used to examine spatial differences and time trends.

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