



## Regional sensitivity to Ambrosia and Artemisia pollen in Ukraine.

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Seasonal allergy affects the largest number of Ukrainians in late summer. The main allergens of this period are the pollen of Ambrosia and Artemisia.

Since mugwort's flowering starts earlier, it causes the first symptoms in patients. Allergic reactions to ragweed pollen persist until the end of October or even mid-November. Therefore, our work aimed to determine the level of regional sensitivity of the population of Ukraine to ragweed and mugwort pollen.

Sensitization data of 20033 patients who underwent allergy diagnosis using the Alex2 test in 2020-2022 was analyzed.

Components taken into account for the analysis included ragweed(Amb a) and mugwort extract(Art v), as well as individual ragweed allergens Amb a 1 and Amb a 4 and mugwort allergens Art v 1 and Art v 3.

According to the Alex2 test scale, the sensitivity threshold to certain allergens is sIgE > 0.31 kU/L. It was found that 6097 people were sensitive to either ragweed extract or one of its allergens. 3145 people were sensitive to mugwort allergens or its extract. Regional affiliation was established for 3171 patients sensitive to ragweed and 1563 patients sensitive to mugwort, or 15.83% and 7.80%, respectively. Moreover, 2468 people (12.32%) were simultaneously sensitive to ragweed and mugwort pollen.

The highest level of sensitization was observed in the population of the southeastern regions, the Steppe zone. In the city of Dnipro, 55.05% and 55.90% of the tested were sensitive to Ambrosia and Artemisia, respectively. Lower numbers were seen for neighbouring regions: Odesa (34.59% for ragweed and 14.14 % for mugwort), Kherson (38.33% and 17.49%, accordingly) and Mykolaiv (45.45% of residents were sensitive to ragweed, no mugwort sensitization was observed).

In Poltava, the number of patients sensitized to ragweed was 42.63%, to mugwort – 18.42%; in Kharkiv – 36.21% and 17.49%, respectively.

In the northern regions, in particular, Sumy, sensitization to Ambrosia artemisiifolia and Artemisia vulgaris was approximately at the same level – 11.75% and 10.60%, accordingly. In Rivne, the percentage of sensitivity to ragweed was 12.94%, to mugwort – 7.06%.

In the capital, Kyiv, sensitization to ragweed - 20.84%, and mugwort – 13.33%.

It turned out that the sensitization of the residents of Zhytomyr was surprisingly high: 25% of the tested were sensitive to ragweed, and 33.33 % - to mugwort.

In the central regions, such as Vinnytsia and Cherkasy, sensitization to ragweed was 9.20% and 32.35% and mugwort – 13.79% and 12.74%, respectively.

The lowest rates of sensitization to ragweed and mugwort were observed in the western regions of Ukraine – Lviv (6.88% and 8.06%), Ivano-Frankivsk (5.18% and 8.09%) and Khmelnytskyi (6.67% and 13.33%). The relatively high sensitivity to ragweed (13.46%) and mugwort (7.69%) in residents of Zakarpattia can be explained by the ragweed infestation from Hungary.

Although sensitization to Ambrosia artemisiifolia pollen is not necessarily equal to sensitization to Artemisia vulgaris pollen, the risk of combined sensitivity remains relatively high. Therefore, the sensitization of residents of Zhytomyr and Kyiv needs the additional attention of aerobiologists and allergists.

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