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MORPHOLOGICAL VARIABILITY OF BROOMRAPE'S SEEDS COLLECTED FROM DIFFERENT HOST PLANTS

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Orobanche cumana Wallr. is a non-photosynthetic angiosperm naturally distributed in wild flora of some European countries, where parasites different species of *Asteraceae*, especially *Artemisia* spp. The broomrape parазizing *A. maritima*, *A. austriaca* or *Matricaria* sp. has been also observed on the territory of the Republic of Moldova.

According to some authors broomrape has gradually evolved and extended from wild host plants to cultivated *Helianthus annuus*. In Moldova, first evidence of the parasite was confirmed in 1866. In 1937, sunflower varieties resistant to race A were found, suggesting the appearance and evolution of race B. Several decades later (in the 1970s), a new broomrape biotype, named race C or the Moldovan race, rapidly spread over all sunflower growing regions. Currently, the most virulent races of *O. cumana*, G and H, have been confirmed.

Considering the fact that *O. cumana* is present for more than 150 years in Moldova, it is important to analyze and highlight distinctive morphological features of broomrape seeds collected in different periods of time, as well as from different hosts.

Thus, 9 samples of broomrape seeds from National Botanical Garden of Moldova herbarium have been studied, including 5 samples collected from *H. annuus*, 3 from *Artemisia* sp. and one from *Matricaria* sp. The morphometric parameters (length (L), width (W) and ratio of L/W) of seeds collected from *H. annuus* showed very similar mean values. Seed length and width were ranging between 0.352-0.425 mm and 0.144-0.193 mm, with a coefficient of variation of 12.6% and 13.4%, respectively. As for the L/W ratio the minimum values – 1.91 (SD±0.452) has been established in the case of broomrape collected from *H. annuus* in 1921. As for the samples collected in 1938-1979, the values of L/W ratio were more similar, ranging between 2.12-2.52 (SD±0.37), with the coefficient of variation 17.3%. Comparing obtained results with those of the analysis on 39 populations of sunflower broomrape collected in 2014 no significant differences have been found. This shows that seed parameters have not changed substantially during *O. cumana* evolution.

In the case of broomrape seeds collected from wild species of *Artemisia* (*A. maritima*, *A. austriaca*) and *Matricaria*, even the values of L/W ratio are also around 2.0 (ranged between 2.12-2.44) the seeds were smaller than those from sunflower crop. Thus, seed length and width were ranging between 0.232-0.307 mm and 0.101-0.172 mm.

Correlative analysis of studied parameters revealed a high positive correlation ($r=0.875$) between length and width. This finding isn't confirmed in contemporary populations.

The highest dissimilarity (0.627-0.714) of broomrape samples, determined by measurement of Euclidean distance based on seed parameters, has been highlighted in samples collected from *Artemisia* sp. and those from *H. annuus*. In the case of *Matricaria* sp. and *H. annuus*, as well as *Matricaria* sp. and *Artemisia* sp. this distance is lesser (around 0.300-0.406). Thus, the differences between analyzed samples could be preferentially attributed to different host that to period of their development.