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THE ROLE OF THE MIGRATORY WATERBIRDS IN ALGAE DISPERSION

A vándorló vízi madarak szerepe a mikroalgák diszperziójában

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Dispersion plays an important role in the organisation of communities and for understanding population dynamic processes. Animal-mediated dispersion is one of the most common and long-studied mechanisms in ecology. Among animals, waterbirds are highly mobile, migrate in huge flocks and have long migratory routes, thus, they can be considered as the main vehicles for the transport of many aquatic plants in freshwater systems both at local and regional scales. Endozoochory by waterbirds has been demonstrated for a range of aquatic invertebrates, soft plant parts and seeds. However, very few publications have exclusively investigated the endozoochory of microalgae.

In this study, we investigated the microalgal flora of the faeces of various waterbirds collected in an isolated nature reserve in Hungary (Andaháza) and focused on elucidating the role of eight waterbird species as dispersal vectors of algae. Our goal was to determine: (1) which algae species can the waterbirds disperse; (2) which algae traits play the most important role in survival during the digestion; (3) which waterbird traits have effect on the composition of dispersed microalgae species. The waterbird faeces contained 157 algal species. Most of the species belonged to the *Chlorophyta* (38%) and *Bacillariophyta* (22%) phyla. The highest number of algae taxa was observed in the samples taken from *Gallinago gallinago* (26 species) and *Lymnocryptes minimus* (20 species).

Among algae traits, the colonial structure and the presence of the silicious cell wall are able to protect algae from digestion. In case of waterbirds, mostly the trophic niche is influenced the ingestion and digestion, and likely the survival of algae. Besides the trophic niche, viability could be influenced by the beak morphology of the waterbirds. Our study supports that waterbirds are probable dispersers of several algae species, however the role of the different waterbird species in algae dispersion are divergent.