

Transgenic plants — a threat to local flora?

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The paper covers major threats associated with wide-range introduction and cultivation of transgenic plants due to germplasm mixing with that of indigenous species of natural plant communities and risks of transgenic plants' adverse impact on the environment. Among them are: influencing non-target species, invasive power, possibility of GMP's escaping into the environment by horizontal gene transfer as well as harmful effect on the soil biota.

Currently, herbicide- and pest-resistant genetically modified plants (GMP) became an integral part of contemporary agrotechnologies in many economies [1]. However, most countries lack national strategy providing science-based substantiated procedure of creating, distribution and safe production of GMP. Rapid development of agricultural biotechnology and GMP production offered many economical benefits but also caused concern due to their potential environmental impact. To date, truly negative effects of GMP production, revealed in the course of growing, are known: harmful effect of entomocide Cry-proteins (Bt endotoxins) on non-target biota, target phytophage resistance to insecticidal plants, phytophage species succession to replace the species eliminated in the agrocoenosis. Vertical transfer of GMP transgenes (repollination between transgenic plants and wild species or isogenic varieties), as well as slow decomposition of transgenic plants' remains — all these factors can have remote environmental consequences [2, 3]. Wind-dispersed pollen of insecticidal GMP contaminates soil and open water reservoirs by toxins, thus posing potential hazards for aquatic organisms and geobionts (including rhizospheric organisms).

Thus, uncontrolled GMP production and introduction, creates a real threat of losing biodiversity and genetic diversity of indigenous plants due to "biological contamination". Therefore, GMP cultivation and monitoring in the fields is of exceptional importance and must be regulated by a science-based national strategy. This strategy would allow to exclude agroecological and environmental genetic risks, to keep the genetic diversity of natural plant communities.

Keywords: transgenic plants; germplasm; plant communities; environmental and genetic risks; GMP monitoring.

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