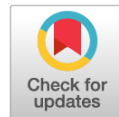


New naturally transgenic crops

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Horizontal gene transfer from agrobacteria to plants turned out to be a much more widespread phenomenon than previously thought. In the first it was established in 2019 due to the application of bioinformatic methods and databases, then about 30 species of naturally transgenic plants were discovered [1]. The deposition of new nucleotide sequences of various plant species makes it possible to periodically update the list of naturally GMOs. Analysis of genomic and transcriptomic databases in 2023 revealed more than 50 new naturally transgenic plants and, thus, more than 100 species of nGMOs are currently known. And the share of naturally transgenic plants in relation to deposited species of terrestrial dicotyledonous plants is about 7%. Interestingly, this indicator retains its value regardless of the change in the number of organisms in the studied databases [2].

Among the discovered new nGMOs there are species that have been cultivated by humans since ancient times and are important agricultural crops. Fruit crops include the following species of nGMOs: carambola (*Averrhoa carambola* L.), persimmon (*Diospyros kaki* Thunb.), wasabi (*Eutrema japonicum* (Miq.) Koidz.), raspberry (*Rubus idaeus* L.), *Luffa acutangula* (L.) Roxb. There are also many medicinal, ornamental and oilseed species among the naturally transgenic plants. Further study of these species would make it possible to establish what role horizontal gene transfer played in the appearance of traits in plants that were selected by humans.

The obtained data can be further used to study the molecular evolution and the role of transgenes in naturally transgenic plants.

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Keywords: crops; nGMO; horizontal gene transfer.

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