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Biodiversity of naturally transgenic *Linaria* plants

Tatiana V Matveeva
St. Petersburg State University, Russia

Most genetic engineering of plants uses *Agrobacterium* mediated transformation to introduce novel gene content. In nature, insertion of T-DNA in the plant genome and its subsequent transfer via sexual reproduction has been shown in several species in the genera *Nicotiana, Ipomea* and *Linaria*. They are called naturally transgenic plant. A sequence homologous to the T-DNA of the Ri plasmid of *Agrobacterium rhizogenes* was found in the genome of untransformed *Nicotiana glauca* about 30 years ago and was named "cellular T-DNA" (cT-DNA). A similar cT-DNA has also been found in other species of the genus Nicotiana. In our study T-DNA-like sequences has been detected and characterized in different *Linaria* species, belonging to two sections *Linaria* and *Speciosa*. In all characterized *Linaria* species the cT-DNA is present in two copies and organized as a tandem imperfect direct repeat and contained the same T-DNA oncogenes and the *mis* gene, however there are different mutations inside the T-DNA in the investigated forms. *Linaria* species are medicinal transgenic plants that people used for ages. Characterization of structure of T-DNA in close species of naturally transgenic plants is important, since they could be good model system for study of delayed environmental risks of GMO.

Biography

Tatiana V Matveeva has completed her PhD and Postdoctoral studies from the Faculty of Biology, St. Petersburg State University, Russia. She is a Doctor of Biological Science, presently working as a Professor of the Department of Genetics and Biotechnology, Faculty of Biology at St. Petersburg State University, Russia. She is also a Member of the Vavilov Society of Geneticists and Breeders and Member of Russian Society of Biotechnologists.

radishlet@gmail.com

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