

Dr. Tatiana S. Antonova (CV)

Tatiana Antonova graduated from Biology and Soil Faculty of Moscow State University, Russia in 1973. The same year she was invited to work at the Research Institute of Oil Crops (VNIIMK) (Krasnodar) as an anatomist and pathologist to study the mechanism of immunity and to search for resistant forms of sunflower to the Moldovan biotype (race C) of broomrape (*Orobanche cumana* Wallr.).

She received a PhD in biological sciences with a specialization in botany in 1978 at the Botanical Institute in St. Petersburg. She has been given the degree of Doctor of biological sciences with a specialization in breeding and seed growing in 1999 at the Kuban Agricultural University, Krasnodar. Since 1998 and to the present day, she is the head of the laboratory of immunity and electrophoresis of VNIIMK.

Dr. Antonova was the first to discover the mechanism of sunflower immunity to the Moldovan biotype of broomrape.

In the late 90's, Dr. Antonova has determined that the Spanish races E and F are identical to the races C and D of broomrape in Russia. She is currently monitoring the racial composition of populations of *O. cumana* and together with her foreign colleagues is working on creation of the united international nomenclature of races of this parasite.

Researches of Dr. Antonova also deal with fungal diseases of sunflower: sclerotinia, Phomopsis, fusarium wilt, downy mildew. She discovered the anatomical characteristics of sunflower stems that determine the resistance to the Phomopsis disease. On their basis, she proposed a method of evaluation of resistance of breeding material to Phomopsis.

She found out that the infestation of living tissues of sunflower with the pathogens of white and gray rots begins with the decomposition of pectin substances of cell walls to the reducing sugars.

Dr. Antonova has also discovered that in different genotypes of sunflower the content of calcium and its lability are unequal; the permeability of cell

membranes is also variable. She showed that these factors play a crucial role in sunflower resistance to the affection of sclerotinia (*Sclerotinia sclerotiorum* (Lib.) dBy), botrytis (*Botrytis cinerea* Pers) and can serve as the selective traits of resistance of breeding material.

She identified 12 species of fungi of the Fusarium genus, parasitizing on sunflower, and offered the method of evaluation and selection of sunflower breeding material resistant to Fusarium root rot.

Dr. Antonova together with her students identified the racial composition of the downy mildew pathogen of sunflower in Russia.

In the area of biotechnology she developed the method of regeneration of sunflower plants from somatic cells, allowing to receive the parental germplasm with increased regenerative ability.

Dr. Antonova is the author of over 160 scientific papers (21 in English) and the co-author of 14 parental lines and hybrids of sunflower; she has 7 patents of invention.