

# INVESTIGATIONS AND THE DESCRIPTION OF VIRUS DISEASES IN SUNFLOWER GROWING AREAS IN THE TRAKYA REGION OF TURKEY

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## ABSTRACT

Being an important source of vegetable oil for human consumption and the source of raw material for food industry, sunflower (*Helianthus annuus* L.) production has been increased steadily in the World and as well as in Turkey. Edirne, Kırklareli and Tekirdağ provinces in the Trakya region have been important sunflower growing areas in Turkey. In order to determine virus diseases reducing oil seed yield and quality survey studies were conducted in two different periods during 2015 growing season. In order to determine viruses on symptomatic sunflowers and weed hosts, 244 leaf samples were collected. For the identification of *Potato virus Y* (PVY), Double Antibody Sandwich Enzyme Linked Immunosorbent Assay (DAS-ELISA) test, for *Tobacco streak virus* (TSV) Triple Antibody Sandwich-Enzyme Linked Immuno Sorbent Assay (TAS-ELISA) and for the identification of Potyvirus'es Plate Trapped Antibody-Enzyme Linked Immuno Sorbent Assay (PTA-ELISA) test methods were employed. For the determination of the effect of virus infections on sunflower seed yield criteria, seeds were harvested from both infected and healthy plants separately which compared for their 1000 seed weight, hectoliter seed weight and their oil content. According to DAS-ELISA test results PVY never present in the sunflower fields of Trakya Region. Depending on symptomatic observations and the results of TAS-ELISA tests 11 out of 244 plant samples had TSV with the rate of 4.51 %. As the results of PTA-ELISA tests and the symptomatic field observations 25 of 244 plants were found infected with Potyvirus'es with the rate of 10.25 %. Totally 36 out of 244 plant samples revealed the presence of viruses with the rate of 14.75 % in the sunflower growing areas. This is the first report of the presence of virus infections on sunflowers in Turkey. Virus infections cause reductions of 1000 seed and hectoliter seed weights of oil seeds as the oil content was found slightly high.

**Key Words :** Sunflower, *Helianthus annuus* L., ELISA, PVY, TSV, Potyvirus