

DISTRIBUTION OF 'CANDIDATUS PHYTOPLASMA SOLANI' IN LOCAL TOMATO VARIETIES

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'*Candidatus Phytoplasma solani*' is a pleomorphic microorganism that infects the phloem of many plant species worldwide. It is also known as stolbur phytoplasma. It affects more than 300 plant species, especially in the European region where it is considered as a quarantine pathogen. In Eastern Europe phytoplasma mainly infects solanaceous crops and grapes leading to severe disturbances in plant growth and affecting productivity indicators. It can cause up to 100% yield loss. Typical stolbur symptoms in tomato include virescence, proliferation of the shoots and generalized stunting, flower sterility and small fruits. Various factors make it difficult to control pathogen, such as the systemic nature of the disease, the complex life cycle, the unsuitability of application of some chemicals from an environmental point of view. Phytoplasma monitoring is an important tool for controlling the spread of the disease in the region. The aim of the research was to determine the presence of stolbur infection in local varieties of tomato using molecular methods.

Molecular analysis of 'Ca. P. solani' was carried out at the end of the 2022 growing season on five local tomato varieties: Desteptarea, Mary Gratefully, Prestij, Tomis and Exclusiv. Plants were grown in experimental fields of IGPPP. For analysis, fruits were taken from 12 plants of each variety. DNA was isolated by the alkaline method from a small section of tomato peduncles. Nested-PCR was performed using specific for 'Ca. P. solani' pairs of chaperonin primers: cpn421 F\R and cpn200 F\R. Molecular analysis demonstrates the presence of phytoplasma in all analyzed genotypes, however a low level of infection was found in all five varieties. Namely, the percentage of infection in the field reached 16.7% at the end of the growing season. The presence of 'Ca. P. solani' was determined in 8% of plants of the Mary Gratefully variety. The same percentage of the infection was determined in the Tomis variety. Tomato varieties Desteparea and Prestij show a higher level of infestation with phytoplasma - 25%. The average indicator of infestation with the pathogen was determined in the Exclusiv variety (16.7%).

Thus, the results obtained show a low distribution of phytoplasma in the field under the conditions of 2022. The data did not indicate which variety is resistant to 'Ca. P. solani'. Although there were established some trends in conditions of 2022 – higher resistance of Mary Gratefully and Tomis and lower resistance of Desteparea and Prestij. Monitoring the spread of phytoplasma is important as it remains a real danger in Moldova and neighboring countries.

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