

## EXPANSION OF THE GEOGRAPHIC DISTRIBUTION OF SUGARCANE MOSAIC VIRUS DETECTION IN UKRAINE

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Worldwide, maize is a strategically important crop for food, feed, and bioenergy purposes. Among the most severe threats to maize production are viral diseases, which can cause significant yield losses and deterioration of grain quality. The presence of sugarcane mosaic virus (SCMV) in Ukrainian maize crops was reported in the Kyiv region based on samples collected in 2018 and 2020–2023 (Snihur et al., 2021; Vlasova et al., 2024). The aim of this study was to determine the distribution of SCMV in maize and sweet corn across different regions of Ukraine. In 2025, symptomatic plants exhibiting characteristic mottle, mosaic, and streak symptoms were collected from the Northern (Kyiv), Southern (Vinnytsia), and Western (Ternopil) regions and tested using double-antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA) with an SCMV-specific kit from Loewe Biochemica (Germany). Serological diagnostics revealed SCMV in samples collected from the Kyiv and Vinnytsia regions. Each plant was analyzed as an individual sample. SCMV was detected in 8 out of 17 tested plants from the Kyiv region (47%) and in 7 out of 10 plants from the Vinnytsia region (70%). For molecular identification of the pathogen, reverse transcription polymerase chain reaction (RT-PCR) was performed using specific primers SCMVcp-F (5'-GGATACGTAGAAGACTACAATG-3') and SCMVcp-R (5'-ATTATAGGTACTGCAAACAG-3') according to Trzmiel et al. (2022). Agarose gel electrophoresis of the obtained products confirmed the presence of specific amplicons of the expected size of approximately 1013 bp. Importantly,

SCMV in the Vinnytsia region was identified in sweet corn plants of a single variety in only one of the five surveyed fields, which may suggest a seed-borne origin of the infection. This is the first report of SCMV detection in this region, which may indicate a systemic issue rather than a localized pathogen occurrence limited to the Kyiv region. Further research should focus on large-scale surveys of maize and sweet corn crops for viral infections, particularly sugarcane mosaic virus, as well as on the transmission pathways of maize viruses in the agrobiocenoses of Ukraine.

**Keywords:** SCMV, *Zea mays* L., sweet corn, detection, virus, Ukraine.

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