

**Pathogenicity of three *Tomato brown rugose fruit virus* isolates and response in tomato
(*Solanum lycopersicum* L.)**

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Abstract

The *Tomato brown rugose fruit virus* (ToBRFV) is an important intracellular pathogen in tomato plants, with high dissemination in commercial greenhouses. Previous studies have confirmed the presence of several ToBRFV isolates from the Netherlands and the Middle East, however, there are few severity studies for these in Mexico. In this study, the pathogenicity of three ToBRFV isolates from greenhouses in Coahuila, Mexico, was analyzed using agronomic, morphological and quality parameters and the design of a diagrammatic scale of severity for leaflets and fruits. The isolates were determined by statistical sampling from the collection of tomato leaflets with positive symptoms of the virus, and its confirmation by immunoStrip® Agdia and RT-PCR. An experimental design was established under a greenhouse conditions with tomato plants var. Río Grande®, with three treatments and 10 repetitions: TB1, TQ2 and FQ3 isolates. For the quantification of the severity in foliages, the sampling was carried out every 15 days after the appearance of the symptoms, until the death of the plant. The fruit damage scale was carried out at the beginning of the harvest until its conclusion. As a result, it was obtained that the agronomic parameters coincided with the intensity of the virus in the analyzed isolates, where; FQ3 stood out, with greater virulence and shorter incubation period. To the best of our knowledge, it is the first reported sighting of ToBRFV from tomato greenhouses in Coahuila, Mexico, as well as the first study that demonstrates the effect of ToBRFV on tomato, using agronomic parameters.

Key-words: diagrammatic scale, incubation, intracellular pathogen, isolated, virulence.