

Differential Sets

Tomato brown rugose fruit virus (ToBRFV) - Tomato and Pepper

ToBRFV is a member of the genus *Tobamovirus*. It is a significant threat, especially to greenhouse tomato production, worldwide (Mizicko 2019, Oladokun et. al. 2019). It was first identified on tomatoes in Israel in 2014 (Luria et. al. 2017) and in Jordan in 2015 (Salem et. al. 2016). The virus has since spread to tomato and pepper production across the world including Mexico, the US, Germany, Italy, Saudi Arabia, Turkey and Egypt (Amer 2020). Because ToBRFV is an emerging pest and easily spread, it is regulated in many countries: <https://gd.eppo.int/taxon/TOBRFV/distribution>

ToBRFV is a highly virulent, very aggressive virus that can cause severe infection in tomatoes, overcoming the resistance to ToMV. Leaf symptoms include distortion, shoestring, mosaic and fern leaf. The calyx may develop brown veins and become desiccated. Necrotic spots may appear on peduncles, calyces and petioles. Fruits can develop severe blotching and brown wrinkled (= rugose) spots and become unmarketable. Affected fruit may also be small or abort.

Other members of this genus include but are not limited to:

Tobacco mosaic virus (TMV)
Tomato mosaic virus (ToMV)
Pepper mild mottle virus (PMMoV)
Cucumber green mottle mosaic virus (CGMMV)

The tomato and pepper differential host responses to ToBRFV were added to the existing ISF differential tables for each of these hosts. Eggplant and potato can also be used as differentiating hosts as both are susceptible to ToMV and are either non-hosts or resistant to ToBRFV.

Tomato

Differential hosts	Gene present	Race			ToBRFV*
		ToMV: 0*	ToMV: 1*	ToMV: 2*	
Monalbo*, Marmande* Early Pak 7*	-	S	S	S	S
Mobaci*	<i>Tm-1</i>	HR	S	HR	NT
Moperou 161*	<i>Tm2</i>	HR	HR	S	S
Momor*, Geneva 80, Gourmet	<i>Tm2²</i>	HR	HR	HR	S

S = susceptible; HR = Highly Resistant

* = differential hosts and isolates that are used by the vegetable seed industry.

NT = not tested

Pepper

Pepper Tobamovirus Group	0	1	2	3	ToBRFV
ISF code	TMV: 0*, 1*, 2 ToMV: 0*, 1*, 2 BPMoV ToBRFV	TMGMV PaMMV*	PMMoV: 1.2*	PMMoV: 1.2.3.*	

Differential Set	Gene	0	1	2	3	ToBRFV
Lamu*, Early Calwonder*		S	S	S	S	S
Tisana, Yolo Wonder*	L1	HR	S	S	S	HR
Tabasco*	L2	HR	HR	S	S	HR
Solario F1*, Novi 3*, PI 159236*	L3	HR	HR	HR	S	HR
Tom4*, PI260429*	L4	HR	HR	HR	HR	HR

S = susceptible; HR = Highly Resistant

* = differential hosts and isolates that are used by the vegetable seed industry.

References

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