

Technical Working Party for Vegetables

TWV/53/6

Fifty-Third Session

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PARTIAL REVISION OF THE TEST GUIDELINES FOR VEGETABLE MARROW, SQUASH

Document prepared by experts from France

Disclaimer: this document does not represent UPOV policies or guidance

1. The purpose of this document is to present a proposal for a partial revision of the Test Guidelines for Vegetable Marrow, Squash (document TG/119/4 Corr. 2).
2. The Technical Working Party for Vegetables (TWV), at its fifty-second session, held in Beijing, China, from September 17 to 21, 2018, agreed that the Test Guidelines for Vegetable Marrow, Squash (document TG/119/4 Corr. 2) be partially revised to add new Characteristic “Resistance to ZYMV” (see document TWV/52/20 “Report”, Annex V).
3. The following changes are proposed:
 - (a) Addition of a new Characteristic “Resistance to *Zucchini yellow mosaic virus* (ZYMV)” at the end of the Table of Characteristics
 - (b) Addition of an explanation for the new Characteristic “Resistance to *Zucchini yellow mosaic virus* (ZYMV)” in Chapter 8.2 “Explanations for individual characteristics”

Proposal to add a new Characteristic “Resistance to *Zucchini yellow mosaic virus* (ZYMV)” at the end of the Table of Characteristics

English	français	Deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
82. Resistance to <i>Zucchini yellow mosaic virus</i> (ZYMV)	Resistance au <i>Zucchini yellow mosaic virus</i> (ZYMV)	Resistenz gegen <i>Zucchini yellow mosaic virus</i> (ZYMV)	Resistencia a <i>Zucchini yellow mosaic virus</i> (ZYMV)		
susceptible	sensible	anfällig	sensible	Cora	1
intermediate resistant	modérément résistante	mäßig resistent	moderadamente resistente	Mirza	2
resistant	résistante	resistent	resistente	Mikonos	3

Proposal to add an explanation for the new Characteristic “Resistance to Zucchini yellow mosaic virus (ZYMV)” in Chapter 8.2 “Explanations for individual characteristics”

Ad. 82: Resistance to Zucchini yellow mosaic virus (ZYMV)

1.	Pathogen	<i>Zucchini yellow mosaic virus (ZYMV)</i>
2.	Quarantine status	No
3.	Host species	<i>Cucurbita pepo</i> L.
4.	Source of inoculum	GEVES ¹ (FR)
5.	Isolate	e.g. strain E9
6.	Establishment isolate identity	-
7.	Establishment pathogenicity	Symptoms on susceptible squash variety
8.	Multiplication inoculum	
8.1	Multiplication medium	Living plant
8.2	Multiplication variety	e.g. Cora
8.3	Plant stage at inoculation	-
8.4	Inoculation medium	-
8.5	Inoculation method	-
8.6	Harvest of inoculum	-
8.7	Check of harvested inoculum	-
8.8	Shelflife/viability inoculum	-
9.	Format of the test	
9.1	Number of plants per genotype	At least 20
9.2	Number of replicates	At least 2
9.3	Control varieties	Susceptible : Cora Intermediate resistant: Mirza Resistant: Miconos <i>Up to now, no complete resistance is identified. The two intermediate and resistant controls are necessary to validate the aggressiveness of the test.</i>
9.4	Test design	add non inoculated plants
9.5	Test facility	Climatic room or greenhouse
9.6	Temperature	e.g. 22°C or 24°C/18°C
9.7	Light	12h-16h
9.8	Season	
9.9	Special measures	-
10.	Inoculation	
10.1	Preparation inoculum	1 g leaf with symptoms with 4 mL of PBS with carborundum (400 mg) and activated carbon (400 mg) or similar buffer, homogenize
10.2	Quantification inoculum	-
10.3	Plant stage at inoculation	First expanded leaf
10.4	Inoculation method	Rubbing with virus suspension
10.5	First observation	14 days post-inoculation
10.6	Second observation	-
10.7	Final observations	21 days post-inoculation
11.	Observations	
11.1	Method	Visual observation

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11.2	Observation scale	Class 0: no symptoms Class 1: few chlorotic spots Class 2: some chlorotic spots Class 3: large chlorotic spots (some spots on young leaves) Class 4: mosaic, weak symptoms of vein banding Class 5: distorting and vein banding
11.3	Validation of test	Results should be compared with results of controls and are depending of the aggressiveness of the test and the distribution of the plants over the categories.
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	Classes 0, 1 are commonly judged as resistant – Note 3 Classes 2, 3 are commonly judged as intermediate resistant – Note 2 Classes 4 and 5 are commonly judged as susceptible – Note 1
13.	Critical control points	Recommended dates of notation should be adapted depending on expression of symptoms on controls. Environmental conditions can have an effect on the expression of symptoms over time. In this case a second notation could be necessary.

ZYMV Observation scale



0: no symptoms



1: few chlorotic spots



2: some chlorotic spots



3: large chlorotic spots (some spots on young leaves)



4: mosaic, weak symptoms of vein banding



5: distorting and vein banding

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