

Seed Transmission of *Zucchini Yellow Mosaic Virus* on *Cucurbita pepo* conv. *citrullina* var. *styriaca* (Oilseed Pumpkin)

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Introduction: *Zucchini Yellow Mosaic Virus* (ZYMV) remains one of the most widespread and destructive viral agents affecting Cucurbitaceae. The apparently rapid spread in many countries of different continents suggested a long distance distribution via infected seeds. However, this avenue of dissemination is very difficult to conclusively prove. Our studies, involving large numbers of zucchini, summer squash and cucumber plants from seeds of infected fruits, have failed to prove seed transmission of ZYMV. The first data indicating that ZYMV could be transmitted via seed, was obtained in a study with hullless oilseed pumpkin (2). The objective of this research was to study seed transmission of ZYMV in naturally infected hullless oilseed pumpkin.

Materials and Methods: Naturally infected fruits of hullless oilseed pumpkin (*Cucurbita pepo* convar. *citrullina* var. *styriaca*) showing mild, severe and very severe symptoms of ZYMV infection, were selected and weighed. The seeds were taken out of the fruit, dried, weighed and kept at 5° C. The seeds were sowed in insect proof greenhouses and the plants were visually observed. The plants with abnormal growth or virus symptoms were selected and tested by ELISA techniques (1). In ELISA serological tests *Zucchini Yellow Mosaic Virus* (Bioreba Art No. 161222), *Watermelon Mosaic Virus 2* (Bioreba Art. No. 161122) and *Cucumber Mosaic Virus* (Bioreba Art. No. 160622) kits were used.

Results: The data and results are shown in Table 1. Out of the 6073 plants, 104 showed symptoms and were virus infected. According to the ELISA tests only ZYMV were detected in all cases and CMV or WMV-2 could not be identified. Virus infected plants were detected in 7 stocks out of 22. Virus transmission rates varied between 0.3% and 15.3%. There was no correlation between symptom severity of fruits and the virus transmission by seeds. Seeds from severely distorted fruits (3, 17, 25, 31 and 37 stock samples) were virus free just as seeds from mild distorted fruits (27, 28 and 46 stock samples) or distorted fruits (7, 22, 3672, 75 and Kákai stock samples). Seeds originated from distorted fruit (10 stock) and from severely distorted fruit (55 stock) showed almost the same rate of virus infection (13.14% and 15.34% respectively).

Literature Cited:

1. Clark, M.F. and Adams, A.N. 1977. Characteristics of the micriplate method of enzyme-linked immunosorbent assay for detection of plant viruses. J.Gen. Virol. 34:475-483.
2. Tóbiás, I. and Kovács, G. 2001. Seed transmission of *Zucchini Yellow Mosaic Virus* – new viral pathogen – on cucurbitaceous plants. Növényvédelem 37, 29-31. (in Hungarian)

Table 1. Seed transmission of ZYMV from naturally infected fruits of hull-less oilseed pumpkin.

Seed Sample	Severity of symptoms ¹	Weight of fruits (kg)	Number of seeds	Number of plants	Number of virus infected plants	Seed transmission rate %
Stock 1.	***	2.1	240	228	1	0.44
3.	***	2.9	220	195	0	0.00
7.	**	2.3	288	261	0	0.00
10.	**	2.4	156	137	18	13.14
17.	***	2.6	275	266	0	0.00
18.	***	3.9	359	334	1	0.30
22.	**	3.1	220	203	0	0.00
25.	***	4.3	504	378	0	0.00
27.	*	3.5	380	354	0	0.00
28.	*	3.6	270	259	0	0.00
31.	***	3.3	580	557	0	0.00
33.	**	3.7	350	319	10	3.13
36.	**	3.9	330	271	0	0.00
37.	***	3.4	320	242	0	0.00
43.	***	3.3	310	283	2	0.71
45.	***	4.9	360	274	1	0.36
46.	*	3.6	60	52	0	0.00
55.	***	2.8	393	378	58	15.34
72.	**	3.5	427	401	0	0.00
75.	**	3.2	139	128	0	0.00
82.	***	3.0	250	238	13	5.46
Kákai	**	3.6	348	315	0	0.00
			6779	6073	104	1.71

¹ *** - severely distorted fruit, ** - distorted fruit, * - mild distortion