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July 19, 2020

**Re: MICROBIOLOGICAL TEST OF SEEDS**

Official sample No.46747-2020/2  
Certificate import no. 98043-2020

**Sample Details:**

Sample:	Coated pepper seeds Capsicum Annum	Lab ID:	4305
Variety:	TIRZA	Seeds origin:	PERU
Lot No.	5.843.182	Name of official Sampler:	Irena Nazarov
Weight of sample:	110gr	Seed owner:	Efal Chemicals
Weight of shipment:	g	Date sampled:07.07.2020	Date Received: 08.07.2020

<b>Tested for:</b>	<b>Results:</b>
Pseudomonas corrugata - 2 replicates of 5000 seeds each	Negative
Clavibacter michiganensis subsp. michiganensis - 2 replicates of 5000 seeds each	Negative
Erwinia carotovora - 2 replicates of 5000 seeds each	Negative
Xanthomonas vesicatoria- 2 replicates of 5000 seeds each	Negative
Tobamoviruses (TMV, ToMV, PMMoV, ToBRFV) - 12 replicates of 250 seeds each, by bioassay method.	Negative
Tomato black ring nepovirus - 1 replicate of 250 seeds	Negative
Tomato ringspot nepovirus -1 replicate of 250 seeds	Negative
Pospiviroids (CEVd, CLVd, MPVd, PCFVd, PSTVd, TASVd, TCDVd and TPMVd) - 6 replicates of 500 seeds each, by the PCR method.	Negative
Phytophthora capsici - 500 seeds	Negative

<b>Tested for:</b>	<b>Results:</b>		
	CSP	CT28	Menzel
Tomato Brown Rugose Fruit Virus (ToBRFV) - 12 replicates of 250 seeds each then unifying each 4 replicates to make 3 final replicates, by the PCR method.	Ct <sub>1</sub> =31.50 Ct <sub>2</sub> =32.50 Ct <sub>3</sub> =32.50	Ct <sub>1</sub> =35.90 Ct <sub>2</sub> =36.20 Ct <sub>3</sub> =38.10	Ct <sub>1</sub> =33.00 Ct <sub>2</sub> =33.80 Ct <sub>3</sub> =36.00
Negative control	Ct=35.40	Ct=39.20	Ct=36.80
Positive control	Ct=29.40	Ct=30.10	Ct=27.60

**Lab ID 4305:**

The tests were performed according to:

S.O.P 54: "Testing Tomato and Pepper seeds for Pt, Pc, Xv, Cmm, Er".

S.O.P 56: "Detection of infectious Tobamoviruses in tomato and pepper plants and seeds"

(Tomato: TMV ToMV, ToBRFV) (Pepper: TMV ToMV, PMMoV, ToBRFV)

S.O.P 80: "Detection of Viroid from the Pospiviroid group including Potato Spindle Tuber Viroid (PSTVd) in plants and seeds by RT-PCR or qPCR method".

"REFERENCE PROTOCOL NAKTUINBOUW:Real-time RT-PCR (RT TaqMan PCR) for pospiviroids (CEVd, CLVd, MPVd, PCFVd, PSTVd, TASVd, TCDVd and TPMVd) on seeds of tomato (*Solanum lycopersicum*)" by Naktuinbouw, 2014

S.O.P 83: "Detection of Fungi in seeds for: Pythium spp., Phytophthora spp., Fusarium spp., Rhizoctonia spp., Verticillium spp., Lasiodiplodia spp., Cyndrocladium spp., Myrothecium spp., Didymella spp., Phoma spp., Colletotrichum spp., Alternaria spp., Stemphylium\* spp., Pestalotia spp., Rhizopus spp., Penicillium spp., Aspergillus spp., Diplodia spp., Helminthosporium spp., Drechslera spp., Bipolaris spp., Septoria spp., Cladosporium \*spp., Macrophomina sp., Phacidiopycnis spp., Neofabraea spp. Urocystis cepulae, Sclerotium cepivorum, Sclerotinia spp., Botryosphaeria spp., Botrytis spp., Ascochyta spp."

S.O.P 103: "Detection of viruses in Solanacea seeds".

S.O.P 126: "Detection of bacteria, viruses, viroids by the RT-PCR or qPCR method"

**Comments:**

1. Transportation: The sample was received in the laboratory without any means of protection from temperature changes.

2. Treatment: The seeds were treated by THIRAM (TMTD) the treatment may interfere or mask the results.

3. ISRAC is not responsible for the testing results conducted by the laboratory and the laboratory's accreditation is not considered as an approval of ISRAC or different party related to the assessed.

4. This document must be referred to entirely and copying of any part of it to other documents is forbidden

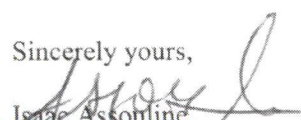
5. The protocols are not valid for coated/pelleted seeds.

6. The test performed is under accreditation to ISO/IEC 17025 standard.

7. The data in this certificate reflect results that are valid for analyzed samples only as received in the lab.

**End of certificate.**

Sincerely yours,



Isaac Assouline,

Head, MicroLab Laboratories (99) LTD.