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Plant Protection and Inspection Services (PPIS)
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Re: MICROBIOLOGICAL TEST OF SEEDS

Official sample No. 50997-202/2
Certificate import no 3307-202

Sample Details:

Sample:	Coated pepper seeds Capsicum Annum	**Lab ID:**	4065
Variety:	CEBRAIL KARNAF	**Seed's Origin:**	PERU
Lot No.	6123356	**Name of Official Sampler:**	Adam Shoshani
No. of Tested Seeds:	16,400	**Seed Owner:**	Efal Chemicals
Shipment Weight:		**Sampled Date**: 01.06.2021	**Received Date**: 03.06.2021

Results:

Tested for:	Method	Replicates	Seeds Number	Result
Pseudomonas corrugata	Semi selective media - Dilutions	2	5000	Negative
Clavibacter michiganensis subsp. *michiganensis*	Semi selective media - Dilutions	2	5000	Negative
Erwinia carotovora	Semi selective media - Dilutions	2	5000	Negative
Xanthomonas vesicatoria	Semi selective media - Dilutions	2	5000	Negative
Tobamoviruses (TMV ToMV, PMMoV, ToBRFV)	Bioassay	12	250	Negative
Tomato black ring nepovirus	Bioassay	1	250	Negative
Tomato ringspot nepovirus	Bioassay	1	250	Negative
Pospiviroids (CEVd, CLVd, MPVd, PCFVd, PSTVd, TASVd, TCDVd , TPMVd)	PCR	6	500	Negative
Phytophthora capsici	Agar plates	1	400	Negative

Lab ID 4065:

Tested for:	Method	Replicates	Seeds Number	Results		
				CT28 (Ct_{1-3})	Menzel (Ct_{1-3})	Remarks
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.	PCR	12	250	Ct_1=38.50 Ct_2=36.30 Ct_3=39.20	Ct_1=39.50 Ct_2=38.00 Ct_3=39.20	Negative*
Negative Control	-	-	-	Ct=38.80	Ct=39.50	
Positive Control	-	-	-	Ct=27.10	Ct=29.10	

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 Lycopersicon)"* 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., *Cylindrocladium* 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., *Neofabraea* spp. *Urocystis* *Septoria* spp., *Cladosporium* spp., *Macrophomina* sp., *Phacidiopycnis* spp. *cepulae, Sclerotium cepivorum, Sclerotinia* spp., *Botryosphaeria* spp., *Botrytis spp., Ascochyta sp.*
S.O.P 103: "Detection of viruses in *Solanaceae* seeds.
S.O.P 126:" Detection of bacteria, viruses, viroids by the RT-PCR or qPCR method".

Comments:
*According to regulation requirements as described at ISHI-Veg (November 2020) and at S.O.P 56. RNA fragments of ToBRFV could be found. A Ct ≤ 33.50 considered as positive Ct=32±1.5 (protocol attached).
1. Transportation: The sample was received in the laboratory without any means of protection from temperature changes.
2. Treatment: The seeds were treated by FLUDIOXONIL,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 test performed is under accreditation to ISO/IEC 17025 standard.
6. The data in this certificate reflect results that are valid for analyzed samples only as received in the lab.
7. The protocols are not valid for coated/pelleted seeds.
Final results are the PPIS representative responsibility.
End of certificate.

Sincerely yours,

Isaac Assouline
Head, Microlab Laboratories (99) LTD