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Multiplex qPCR set for the detection of the *Ralstonia solanacearum* species complex (RSSC)

R. solanacearum (1,2) is a soil-born bacterial pathogen and a well-known agricultural threat to many plant species worldwide. The bacterium has a broad host range and infects over 250 plant species from more than 50 families, including solanaceous vegetable crops such as tobacco, tomato, and potato, but also banana, ginger, mulberry, and ornamental plants like *Pelargonium* species and roses (3).

R. solanacearum infects plants through wounds, root tips, or cracks in lateral roots, and can also enter through stem injuries or irrigation water (3). The bacterium colonizes the root xylem, blocking the vascular system and water supply. This subsequently leads to wilting, yellowing leaves, reduced yield, and ultimately the death of the plant (2,4).



The *R. solanacearum* species complex (RSSC) was recently classified into three distinct species *R. solanacearum* (Phylotype II), *R. pseudosolanacearum* (Phylotypes I and II), and all three subspecies of *R. syzygii* (Phylotype IV) (6). The latter comprises three subspecies: subsp. *syzygii*, subsp. *celebesensis* and subsp. *indonesiensis*. The species differ in their host range, metabolic requirements, centers of origin, and ideal environmental conditions for infection.

The BIOREBA qPCR Rs was developed and validated to detect all three species and subspecies of the RSSC and the respective phylotypes in a diverse range of host plants.

qPCR Rs kit

Your Benefits:

- Duplex real-time PCR
- For the detection of all species of the RSSC
- Including 18s rRNA genomic sequence detection as an internal positive control (IPC)
- Developed and validated by BIOREBA
- Fast and reliable protocol
- Increased test security due to lot-to-lot consistency
- Cost-effective & time-saving



The graph shows the amplification curve for HEX (Rs) of a R. solanacearum-infected potato sample. No amplification was detected in the Plant DNA negative control and the "no template control" (NTC). Amplification for ROX (18S) could be detected in the RS-infected potato and in the Plant DNA negative control, but not in the NTC.

Please note: BIOREBA AG offers the detection of RSSC species in its ISO-17025 accredited testing services laboratory.

Sales Part No.	Product name	Colour of screw cap	Name	Volume
869600	qPCR Rs set 96	Green Clear - -	Taq Master Mix (2x) Art. No. 830412 Primers/Probes Mix Rs/18S (10x) Art. No. 860100 Nuclease-free water Art. No. T143.4 Rs DNA positive control (PC) Art. No. 860053 Plant DNA negative control (NC) Art. No. 870043	1.2 ml 0.2 ml 1 ml 30 μl 30 μl
869200	qPCR Rs set 192	Green Clear - -	Taq Master Mix (2x) Art. No. 830412 Primers/Probes Mix Rs/18S (10x) Art. No. 860100 Nuclease-free water Art. No. T143.4 Rs DNA positive control (PC) Art. No. 860053 Plant DNA negative control (NC) Art. No. 870043	2 x 1.2 ml 2 x 0.2 ml 2 x 1 ml 30 μl 30 μl

Set format and content:

References:

(1) Smith E. F. A Bacterial Disease of the Tomato, Eggplant, and Irish potato (Bacillus solanacearum nov. sp.). US Department of Agriculture, Washington, DC. 1896 (2) Yabuuchi E, Yano I, Hotta H, Nishiuchi Y, Kosako Y. Transfer of Two Burkholderia and An Alcaligenes Species to Ralstonia Gen. Nov. Microbiol Immunol [Internet]. 1995 Nov 1 [cited 2024 Sep 13];39(11):897–904. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1348-0421.1995.tb03275.x

(3) García RO, Kerns JP, Thiessen L. Diagnostic Guide Ralstonia solanacearum Species Complex: A Quick Diagnostic Guide. Plant Health Prog [Internet]. 2019 [cited 2023 Aug 29];20:7–13. Available from: https://doi.org/10.1094/PHP-04-18-0015-DG

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