HLVd elimination through testing and culling of infected plants

Hop latent viroid (HLVd) is a single-stranded, circular infectious RNA that does not code for any protein. Therefore, HLVd is completely dependent on its host plant's metabolism for replication (1). HLVd was first identified in commercial hop varieties (*Humulus lupulus*) in Spain (2). Since this viroid did not induce any visible disease symptoms in hops, it was named "hop latent viroid" (3). Although HLVd-infected hop plants are symptomless, infection significantly reduces yield, bitter acid content, and terpene content of hop cones, which largely increases the economic impact of the viroid (4).



In hemp (*Cannabis sativa*), HLVd was first observed in California (USA) in 2017 and was found to be the causative agent of what was formerly called "duds" or "dudding disease". This disease has become the most devastating cannabis disease in cannabis-growing areas. Observed symptoms are shorter internodal spacing, smaller leaves, stunting, malformation, chlorosis, brittle stems, reduced vigor, lower water intake, reduced flower mass, and trichomes (4). These symptoms are reflected in yield and loss of quality, with up to a 50% reduction in cannabinoid and terpene production (4).

HLVd can be transmitted by contaminated tools, grafting, and vegetative propagation (1). Regular testing and culling of infected plants are indispensable for proper disease management.

qPCR Hop latent viroid (HLVd) set

Your Benefits:

- One-step duplex real-time RT-PCR
- **The second section in hop and hemp leaves**
- Including cytochrome oxidase (COX) detection as an internal positive control (IPC)
- Developed and validated by BIOREBA
- Fast and reliable protocol
- **1** Increased test security due to lot-to-lot consistency
- Cost effective
- 😵 Time saving

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Graph shows the amplification curve of a HLVd-infected sample. The healthy control sample and the "no template control" (NTC) show no amplification.

Components:

Sales Part No.	Product name	Colour of screw cap	Name	Volume
899600		Blue	Taq Master Mix (2x) Art. No. 831412	1.2 ml
		Yellow	RT Master Mix (50x) Art. No. 830414	0.05 ml
	qPCR HLVd	Clear	Primers/Probes Mix_HLVd/COX (10x) Art. No. 890100	0.2 ml
	set 96	-	Nuclease-free water Art. No. T143.4	1 ml
		-	HLVd positive control (PC) Art. No. 890053	30 µl
		-	Plant RNA negative control (NC) Art. No. 830043	30 µl
899200		Blue	Taq Master Mix (2x) Art. No. 831412	2 x 1.2 ml
		Yellow	RT Master Mix (50x) Art. No. 830414	2 x 0.05 ml
	qPCR HLVd	Clear	Primers/Probes Mix_HLVd/COX (10x) Art. No. 890100	2 x 0.2 ml
	set 192	-	Nuclease-free water Art. No. T143.4	2 x 1 ml
		-	HLVd positive control (PC) Art. No. 890053	30 µl
		-	Plant RNA negative control (NC) Art. No. 830043	30 µl

References:

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