Watch and test in parallel for 5 important plant viruses in Cannabis cultivation
In recent years, viruses have become a major challenge for hemp (*Cannabis sativa*) propagation. In North America, it has been estimated that approximately 50% of hemp plants are infected with one or more viruses or viroids. Growers face the negative consequences of reduced vigor, lower flower yields and reduced production of primary target compounds, including terpenoids and cannabinoids.

Recognizing the symptoms of viral infections, understanding their effects, and knowing their modes of transmission are the first steps in protecting your crops and ensuring a healthy yield. Further, regular testing, early detection, and proper disease management practices can help you to reduce the impact of viral infections on your Cannabis cultivation.

DAS-ELISA Cannabis Complete Kit 5x96

for AMV ArMV CMV TMV TSV

Your Benefits:

- **Highly sensitive and specific diagnostic tool**
- **Easy to use, reliable and efficient**
- **All-in-one and ready to use in minutes**
- **Only one extraction for the analysis of 5 viruses**
- **Analysis of 5 viruses on one plate in parallel**
- **1 Kit for 96 samples**
- **Including positive controls and negative control**

With our DAS-ELISA Cannabis Complete Kit 5x96 you can test and detect the following five Cannabis related plant viruses at an early stage:

1. Alfalfa Mosaic Virus (AMV)
AMV belongs to the top viral pathogens seen in in Cannabis plants (1). The RNA virus AMV primarily affects leguminous crops, but does not spare Cannabis. It can be transmitted by several aphid species, through mechanical transmission and through infected plant material.
AMV symptoms include: Mosaic patterns with irregular light and dark green leave areas, leaf yellowing and distortion and stunted growth. Infection with AMV can drastically impact your Cannabis cultivation efficiency by reduction of yield and crop quality, impaired photosynthesis and weakened plant health (2).

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2. Arabis Mosaic Virus (ArMV)

ArMV is transmitted by soil-inhabiting nematodes from infected to healthy plants. Infection of ArMV results in leaf mottling, twisted and curled foliage, stunted shoot growth, subsequently leading to reduction of yield (3).

3. Cucumber Mosaic Virus (CMV)

CMV is an RNA virus primarily infecting cucurbits, but it is also able to infect Cannabis plants (4). It is transmitted by more than 80 distinct aphid species and can also be spread by seeds. CMV infection can cause serious mosaicism and dwarfism, causing the plant to mature earlier and reducing yield.

4. Tobacco Mosaic Virus (TMV)

TMV is an RNA-based virus that can infect numerous plant species, the most common host are tobacco plants. The virus can easily be transmitted mechanically, as for example through tools, clothes and contaminated hands. The symptoms of TMV infection include: twisted and curved leaves with a mottled, mosaic pattern, as well as brown leaves with "burnt" edges. TMV infection of Cannabis plants can result in stagnation in growth, weakened and atypical coloured stems, anaemic (small) buds (5).

5. Tobacco Streak Virus (TSV)

TSV is an RNA virus with a tripartite genome. TSV has a wide host range with over 30 monocotyledonous and dicotyledonous families that are susceptible. The virus is reported to be transmitted via thrips infestation, pollen and via seeds (6). It was first reported to infect Cannabis in 1971 and TSV infection leads to symptoms of stunting and mosaic patterning.

Components of Cannabis Complete Kit 5x96

IgG	5 x 0.025 ml	Substrate buffer (5x)	20 ml
Conjugate	5 x 0.025 ml	Washing buffer	1 pouch
Positive control	5 x 2.5 ml	Substrate (pNPP)	5 x 20 mg
Negative control	1 x 2.5 ml	Microtiter plates	5 pcs.
Extraction buffer (10x)	50 ml		
Coating buffer	1 tablet		
Conjugate buffer (10x)	10 ml		

BUY NOW

References:

(1) National Cannabis Industry Association, B. Moore, October 3, 2022, Top 6 Pathogens Seen in Cannabis Plants.

(2) National Cannabis Industry Association, B. Gilbert, July 13, 2023, Understanding Alfalfa Mosaic Virus – The Four Key Aspects of its Symptoms, Effects, and Transmission Strategies.

(3) Utah State University, Utah Pests, Arabis Mosaic Virus, July 19, 2023.

(4) Kegler, Hartmut, and Dieter Spaar. "Zur Virusanfälligkeit von Hanfsorten (Cannabis sativa L.)." *Archives of Phytopathology & Plant Protection* 30.5 (1997): 457-464.

(5) Wang, Shouhua. Diagnosing hemp and Cannabis crop diseases. CABI, 2021.

(6) Chiginsky, Judith, et al. "First insights into the virus and viroid communities in hemp (Cannabis sativa)." *Frontiers in Agronomy* 3 (2021): 96.

(7) Miotti, Niccolò, et al. "A Guide to Cannabis Virology: From the Virome Investigation to the Development of Viral Biotechnological Tools." *Viruses* 15.7 (2023): 1532.