

Product Information: DAS-ELISA

Apple proliferation (ApP)

Apple proliferation (ApP) is caused by the obligate bacterial parasite *Candidatus Phytoplasma mali*. ApP induces a range of symptoms that are either nonspecific, such as foliar reddening and yellowing, growth suppression, and undersized fruit, or specific, such as witches'-brooms, rosettes, and enlarged stipules. The disease is vectored mainly by the psyllids *Cacopsylla picta* and *C. melanoneura*.

Specificity and sampling instruction

The DAS-ELISA reagents (1) consist of monoclonal antibodies, made against an Italian strain of ApP (2) and specifically recognize ApP in apple. Most ApP isolates (from several locations in Italy and Germany) were detected with this reagent. Recently, however, some isolates belonging to the AT-1 subtype, were shown not to be recognized with these antibodies (4). The concentration of ApP varies during the year. The highest phytoplasma concentration is found in veins of apple leaves late in the growing season; in some favorable (mild winter) climates, good detection might be possible already during summer. For increased sensitivity, we suggest cutting out the veins from the apple leaves. The veins should be homogenized at a ratio of 1:10 (w/v) in extraction buffer «General» (Art. No. 110120). Cambium from dormant wood of 1-3 years old branches can also serve as sample source. For testing, use either fresh tissue (fresh extracts) or frozen extracts, because the antigenic activity is completely lost during freezing of intact leaves but maintained in frozen extracts (3).

The product was developed in cooperation with the University of Udine, Italy.

Information on the antibodies

Coating IgG: monoclonal; conjugate: monoclonal

References

- (1) Clark, M.F., and Adams, A. N. 1977. J. gen. Virol. 34:475-483.
- (2) Loi, N., Ermacora, P., Carraro, L., Osler, R., and Chen, T. A. 2002. Eur. J. of Plant Pathology 108:81-86.
- (3) Brzin, J., Ermacora, P., Osler, R., Loi, N., Ravnkar, M., Petrovic, N. 2003. J. Plant Diseases and Protection 110:476-483.
- (4) Martini, M., Ermacora, P., Delic, D., Moruzzi, S., Loi, N., and Carraro, L. 2005. Petria 15:105-107.

Ordering Information

BIOREBA offers the following formats:

Individual ELISA reagents for 100, 500 or 1000 assays: IgG and/or conjugate for the working volume of 200 µl/test/well.

Reagent sets for 480 or 960 assays: IgG and conjugate, positive and negative controls, and microtiter plates (F-96) for a working volume of 200 µl/test/well.

Complete kits for 96, 480 or 960 assays: All reagents, controls, microtiter plates (F-96), buffers, and substrate necessary for a working volume of 200 µl/test/well.

ELISA buffers, equipment for sample preparation and disposables are also available.

For all Art. No. please refer to our product catalogue or our homepage www.bioreba.com and for prices and further information on any other product from BIOREBA, please contact your local distributor or our office in Switzerland.

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Adaptations from last version: changed assays of individual ELISA reagents.