

Citrus Greening (HLB) — Leaf Sample High-Sensitivity Field Nucleic Acid Test Kit —
Instructions for Use (IFU)

Product Name

Generic name: Citrus Greening (HLB) — Leaf Sample High-Sensitivity Field Nucleic Acid Test Kit

Package Specification

16 tests/box

Intended Use

This kit amplifies nucleic acid sequences specific to Citrus Greening (HLB) — Leaf Sample and uses directional signal amplification technology to achieve high-sensitivity detection of the target nucleic acid. Applicable sample types: citrus leaves.

Test Principle

This kit amplifies nucleic acid sequences specific to Citrus Greening (HLB) — Leaf Sample and uses directional signal amplification technology to achieve high-sensitivity detection of the target nucleic acid.

Main Components

Table 1. Main components

No.	Component	Main ingredients	Specification	Qty.
1	Grinding solution	Buffer	60 mL/bottle	1
2	Grinding bags	—	16 pcs/bag	1
3	HLB enzyme pellet	Primers, probe, endonuclease, deoxyribonucleoside triphosphates, polymerase	16 tests/pack	1
4	HLB positive control	Target plasmid containing the target fragment	280 μL/tube	1
5	Negative control	Nuclease-free water	280 μL/tube	1
6	Lysis solution	Buffer	16 tubes/bag	1

Storage Conditions and Shelf Life

Store at 2–8°C. Shelf life: 12 months.

Sample Preparation

1.

Before starting the test, remove the grinding solution and grinding bags, and prepare disposable gloves and scissors.
2.

While wearing disposable gloves, take one medium-sized leaf. Cut a 0.5-cm-wide section of the midrib with scissors, cut the midrib into small pieces, transfer them into a grinding bag, and label the bag.
3.

Remove the disposable gloves. Add 2 mL of grinding solution and use a marker pen to grind the leaf back and forth 60 times until the leaf is fully fibrous.

Note: Change disposable gloves and scissors before preparing each sample to avoid cross-contamination between samples.

Nucleic Acid Extraction

1.

Remove the required number of lysis-solution tubes. Flick each tube downward forcefully 3 times to collect the liquid at the bottom, and label the tubes.
2.

Transfer 50 μL of supernatant from the grinding bag into a lysis-solution tube and close the cap tightly.
3.

Mix the lysis-solution tube forcefully up and down 5 times, then flick it downward forcefully 3 times to collect the liquid at the bottom. This is the nucleic acid solution for testing. If testing cannot be performed immediately, store at 4°C for no more than 1 h.

Note: When withdrawing liquid from the grinding bag, do not allow the pipette to touch the inner wall of the bag and avoid aspirating solids.

Test Procedure

- 1. Remove and cut off the required number of enzyme-pellet tubes. Along the wall of separate tubes, add 50 µL of negative control, nucleic acid solution for testing (use the supernatant and avoid solids at the bottom), and positive control, respectively.
- 2. Close the tube caps tightly. Hold both ends of each tube between the thumb and index finger, mix forcefully up and down 10 times, and then flick downward forcefully 3 times to collect the liquid at the bottom. Visually confirm that the enzyme pellet is completely dissolved, the liquid level is uniform, and no bubbles remain at the bottom; then place the tubes in the palm-sized fluorescence detector for testing.

Note: Manual mixing is a critical step and must be performed thoroughly. Before starting the test, make sure the enzyme-pellet tube caps and the lid of the palm-sized fluorescence detector are closed tightly.

Result Interpretation

At the end of the test program, the palm-sized fluorescence detector automatically analyzes and determines the result.

Table 2. Result interpretation for the palm-sized fluorescence detector

Assessment	TT display	Displayed result
Negative control	—	NC
Positive control	TT ≤ 10	PC
Positive sample	TT ≤ 20	Positive
Negative sample	—	Negative

Equipment and Consumables Required but Not Provided

- 1. Personal protective equipment (disposable gloves, laboratory coat, protective eyewear, etc.).
- 2. Timer.
- 3. Liquid-waste container.

Precautions

- 1. Do not use expired reagents.
- 2. Perform the entire procedure in a nuclease-free environment.
- 3. Wear disposable gloves during operation.
- 4. Use filtered pipette tips to prevent contamination of the pipette.
- 5. All sample tubes, centrifuge tubes, tips, reagents, and test tubes are single-use and must not be reused.
- 6. Do not mix reagents from different product lots.

IFU Approval and Revision Date

August 10, 2026