QuickStix™ Kit for AAD-12 Leaf and Seed

Highlights:

- *Results in 5 minutes or less*
- *Available as 100-strip individual kits*

Contents of Kit:

- *100 QuickStix Strips packed in two moisture-resistant canisters*
- *100 Disposable Tissue Extractors, each consisting of a tube with punch cap and pestle (optional item with bulk packaging)*
- *Extraction Buffer packet*



Obtain Leaf Tissue



Grind Tissue

Catalog Number AS 418 LS *Part # 12490, 12492*

Intended Use

The QuickStix Kit for AAD-12 Leaf and Seed is designed to extract and detect the presence of the vegetative herbicidal protein AAD-12 at the levels typically expressed in genetically modified soybean or cotton leaf and seed tissue.

How the Test Works

Soybean and cotton plants have been genetically modified with the *aad-12(a)* gene to express AAD-12 protein. To detect the protein with QuickStix Strips, the sample must first be extracted in buffer to solubilize the protein.

Each QuickStix Strip has an absorbent pad at each end. The protective tape with the arrow indicates the end of the strip to insert into the sample extract. The sample will travel up the membrane strip and be absorbed into the larger pad at the top of the strip. The portion of the strip between the protective tape and the absorbent pad at the top of the strip is used to view the reactions as described under "Interpreting the Results". Please avoid bending the strips.

Sample Preparation

Prepare Extraction Buffer: *Mix provided buffer packet with 1L of distilled or deionized water until fully dissolved. Store refrigerated when not in use; allow to come to room temperature before using.*

To extract leaf tissue:

1. Sandwich a section of leaf tissue between the cap and body of the Disposable Tissue Extractor tube; snap **two circular tissue punches** by closing the cap. Push the leaf punches down into the tapered bottom of the tube with the pestle. Sample identification should be marked on the tube with a waterproof marker.
2. Insert the pestle into the tube and grind the tissue by rotating the pestle against the sides of the tube with twisting motions. Continue this process for 20 to 30 seconds, or until the leaf tissue is well ground.
3. Add 0.5 mL Extraction Buffer.
4. Repeat the grinding step to mix tissue with Extraction Buffer. Dispose of the pestle (do not re-use pestles on more than one sample).

To extract seed:

1. Crush a single seed *(Suggestion: use pliers with seed in microcentrifuge tube or resealable plastic bag).* Transfer to an extraction tube marked with sample identification. Note: Complete crushing of seed improves extraction efficiency and test performance.
2. Add 0.6 mL Extraction Buffer
3. Close the tube cap securely. Shake the tube vigorously for 20 to 30 seconds, using an **up-and-down motion**, ensuring that the crushed seed and buffer are **well** mixed. Allow the solid material to settle to the bottom of the tube. The cotton seed extract takes on a yellow to brown opaque color when the samples are prepared properly.
4. Use caution to prevent sample-to-sample cross-contamination with plant tissue, fluids, crushing equipment (*pliers*) or disposables. Be sure to use a new tube for each sample tested.



Crush Seeds



Extract Seed Sample



Place strip in vial, wait 5 minutes



Any clearly discernable pink Test Line is considered positive

How to Run the QuickStix Strip Test

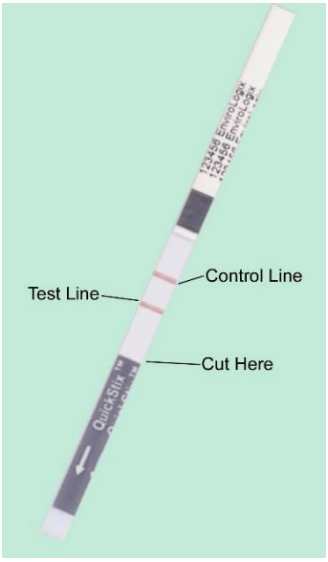
1. Allow refrigerated canisters to come to room temperature before opening. Remove the QuickStix Strips to be used. Avoid bending the strips. Reseal the canister immediately.
2. Place the strip into the tissue extract. The sample will travel up the strip. Use a rack to support multiple tubes if needed.
3. Allow the strip to develop for 5 minutes before making final assay interpretations. Positive sample results may become obvious much more quickly.
4. To retain the strip, cut off and discard the bottom section of the strip covered by the arrow tape.

Interpreting the Results

Development of the Control Line within the specified time indicates that the strip has functioned properly. Any strip that does not develop a Control Line should be discarded, and the sample re-tested using another strip.

If the extract is from an *aad-12(a)*-modified seed or leaf, a second line (Test Line) will develop on the membrane strip between the Control Line and the protective tape. *The results should be interpreted as positive for AAD-12 protein expression.*

If no Test Line is observed after the specified time have elapsed, the results should be interpreted as negative. A negative result means the sample contains less AAD-12 protein than is typically expressed in the seeds or leaves of *aad-12(a)*-modified plants.



Kit Storage

This Kit can be stored at room temperature, or refrigerated for a longer shelf life. Please note the shelf life on the kit label for each storage temperature. The kit may be used in field applications; however, prolonged exposure to high temperatures may adversely affect the test results. Do not open the desiccated canister until ready to use the test strips.

Precautions and Limitations

- This kit is designed to screen for presence or absence only, and is not meant to be quantitative.
- As with all tests, it is recommended that results be confirmed by an alternate method when necessary.
- The assay has been optimized to be used with the protocol provided in the kit. Deviation from this protocol may invalidate the results of the test.
- The results generated through the proper use of this kit reflect the condition of the working sample directly tested. Extrapolation as to the condition of the originating lot, from which the working sample was derived, should be based on sound sampling procedures and statistical calculations which address random sampling effects, non-random seed lot sampling effects and assay system uncertainty. A negative result obtained when properly testing the working sample does not necessarily mean the originating lot is entirely negative for the analyte or protein in question.



For Technical Support Contact Us At:

EnviroLogix
500 Riverside Industrial Parkway
Portland, ME 04103-1486
USA

Tel: (207) 797-0300
Toll Free: 866-408-4597
Fax: (207) 797-7533

e-mail:
info@envirologix.com

website:
www.envirologix.com

- A strong positive result may safely be interpreted in as little as 3 minutes after sample addition. It is not safe, however, to interpret negative results prior to 5 minutes.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in a vehicle.

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