

Boron Colorimetric Assay

One-step Fast Sensitive Quantitation for Boron with Azomethine-H

DESCRIPTION

Boron is an essential micronutrient in plants and is involved in maintaining robust cell walls, cell membranes, and reproductive tissues. Although boron is common in the soil in its natural state as a borate mineral, the amount of boron available to plants is quite small. As a result, boron deficiency is the second most common micronutrient deficiency among crop plants. In order to keep plant boron levels in a healthy range, supplementation to the soil via fertilizers and additives is often required. If not regulated, a lack of or excess of boron may significantly lower crop yield. In the biotech industry, sodium borohydride is commonly used to conjugate antibodies and typically needs to be removed from the final product, especially for therapeutic antibodies.

TribioScience's Boron Colorimetric Assay provides a convenient and reliable means to measure boron. In the assay, borate complexes with azomethine-H to create a colored compound that can be measured at 420nm. This assay can be used with a variety of samples and is simple, sensitive, and adaptable to high-throughput screening.

APPLICATIONS

Direct Assays: Boron in water, plant tissues, soil samples, and antibody conjugation solutions.

KEY FEATURES

- Fast:** Just one-step that takes less than 10 minutes.
- Accurate:** Linear detection range of 0.1-20 µg/mL (0.1-20 ppm) boron in 50µL samples.
- Simple and High-Throughput:** The reagents are ready-to-use. Kit can be used for a robust method for a high-throughput 96-well or 384-well plate.

KIT CONTENTS (for 200 Assays):

Assay Buffer A: 12mL	Boron Standard: 200uL
Assay Buffer B: 12mL	(100ug/mL)

STORAGE AND HANDLING

Store kit at -20°C. Shelf life of six months.

PROTOCOL

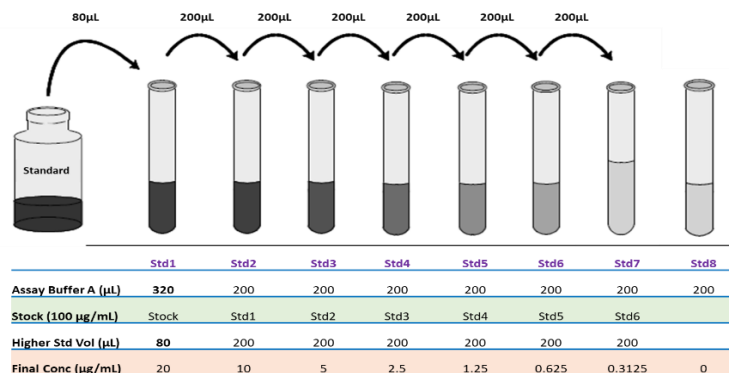
Sample Preparations:

Samples can be processed with the appropriate methods. The samples should be transparent and precipitate-free. If samples are cloudy or have precipitates, centrifuge 5 min at 14,000x g and use clear supernatant for assay.

Standard Curve Preparations:

- Label test tubes #1 through #8 as described in the Table below.
- Pipet 320µL of Assay Buffer A into tube #1, and 200µL into tubes #2 to #8. The aldosterone stock solution contains an organic solvent.
- Add 80µL of Boron stock (100 µg/mL) to tube #1 and mix.

- Take 200 µL of Boron Std 1 from tube #1, and add it to tube #2 and mix completely. Repeat the 2x serial dilutions for tubes #3 through #7. The Boron concentration will be 20, 10, 5, 2.5, 1.25, 0.625 and 0.3125 µg/mL. Tube #8 is 0 as blank control.



ASSAY PROCEDURE

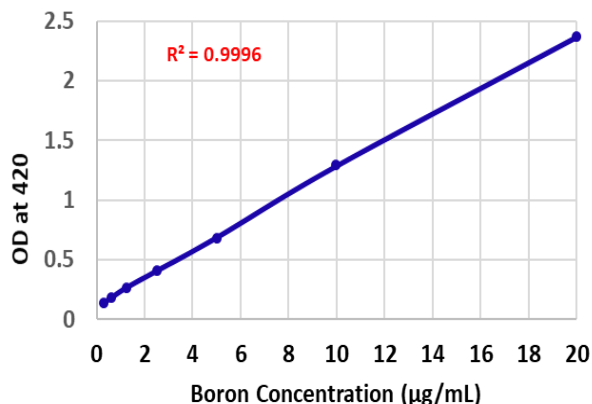
- Add 50 µL of Standards, samples into wells in duplicate manner.
- Add 50 µL Assay Buffer A to each well.
- Add 50 µL Assay Buffer B to each well Tap plate lightly to ensure the contents of the wells are mixed evenly. Incubate for 10 min at room temperature, protected from light.
- Read optical density (OD) at 420nm.

Calculation

Subtract the blank value (0 µM Standard) from the standard values and plot the ΔOD against standard concentrations. Calculate the Borone concentration of the Sample using the linear regression of the standard curve.

RELATED PRODUCTS

- Cell Viability Assay Kits (TBS2001)
- ATP Colorimetric/Fluorometric Assay (TBS2010)
- ADP Colorimetric/Fluorometric Assay Kit (#TBS2020)
- Glucose Oxidase Colorimetric/Fluorometric Assay (TBS2088)



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