Amplite® Colorimetric Phenolic Compounds Assay Kit

Catalog number: 11332
Unit size: 200 Tests

Component	Storage	Amount (Cat No. 11332)
Component A: Phenolic Compound Probe	Freeze (< -15 °C), Minimize light exposure	2 Vials (1 mL /Vial)
Component B: Phenolic Compound Assay Buffer	Freeze (< -15 °C), Minimize light exposure	1 Bottle (10 mL)
Component C: Catechin Standard	Freeze (< -15 °C), Minimize light exposure	1 Vial (10 mM, 100 uL)

OVERVIEW

The Amplite® Colorimetric Phenolic Compounds Assay Kit is a highly sensitive and specific assay for quantifying total phenolic content in diverse biological samples. The assay is based on the reaction between phenolic compounds and diazonium salts under alkaline conditions, forming a stable diazo chromophore that can be quantified by absorbance at 480 nm. Unlike the Folin-Ciocalteu method, this assay minimizes interference from non-phenolic reducing agents such as sulfites, reducing sugars, and ascorbic acid, ensuring greater specificity for phenolic compounds. With a detection limit of 0.02 mM catechin equivalents (CEs), the assay is compatible with high-throughput workflows and is validated for applications involving complex matrices such as fruits, vegetables, beverages (e.g., tea, wine, coffee), processed food products, plant extracts, and herbal or nutraceutical formulations.

Phenolic compounds are a diverse group of phytochemicals widely distributed in dietary and medicinal plants, including fruits, vegetables, cereals, and beverages such as tea, coffee, and wine. These compounds, encompassing phenolic acids, flavonoids, stilbenoids, lignans, and polyphenols, play essential roles in plants, such as UV protection, herbivore deterrence, and developmental signaling. In humans, their potent antioxidant properties have been linked to reduced risks of cardiovascular diseases, cancer, and neurodegenerative disorders. Additionally, their antimicrobial, anti-inflammatory, and immunomodulatory effects underscore their significance in both biomedical research and dietary science.

AT A GLANCE

Protocol Summary

1. Prepare and add standards and samples (100 µL).
2. Add 20 µL Phenolic Compound Probe to the wells of standards and samples.
3. Add 80 µL Phenolic Compound Assay Buffer to the wells of standards and samples.
4. Incubate the reaction at room temperature for 5 to 30 minutes.
5. Monitor the absorbance with an absorbance plate reader at 480 nm.

Note: Bring kit components to room temperature before starting the experiment.

KEY PARAMETERS

Absorbance microplate reader

Absorbance	480 nm
Recommended plate	White plate/Clear bottom

PREPARATION OF STANDARD SOLUTIONS

For convenience, use the Serial Dilution Planner:
https://www.aatbio.com/tools/serial-dilution/11332

Preparation of Standard Curve
Add 10 µL of 10 mM Catechin Standard solution (Component C) to 990 µL H2O to prepare 100 µM Catechin solution (STD7). Then take 300 µL of the STD7 solution and perform 1:2 serial dilutions in H2O to prepare the remaining serially diluted Catechin Standards (STD6-STD1), resulting in concentration ranges from 100 µM to 1.55 µM.

SAMPLE EXPERIMENTAL PROTOCOL

STD1	STD1	TS	TS				
STD2	STD2						
STD3	STD3						
STD4	STD4						
STD5	STD5						
STD6	STD6						
STD7	STD7						
BL	BL						

Table: 1 Layout of Catechin standards and test samples in a clear bottom 96- wells microplate. Catechin standards (STD7-STD1: 100 µM to 1.55 µM), TS= Test Samples, BL = 0 µM Catechin.

The following protocol can be used as a guideline and should be optimized accordingly.

1. Prepare the standards and test samples according to the recommended protocol, and add 100 µL of each into the wells of a microplate.
2. Add 20 µL Phenolic Compound Probe (Component A) to each well containing standards and samples.
3. Add 80 µL Phenolic Compound Assay Buffer (Component B) to the wells of standards and samples.
4. Incubate the reaction at room temperature for 5 to 30 minutes.
5. Monitor the absorbance with an absorbance plate reader at 480 nm.

EXAMPLE DATA ANALYSIS AND FIGURES

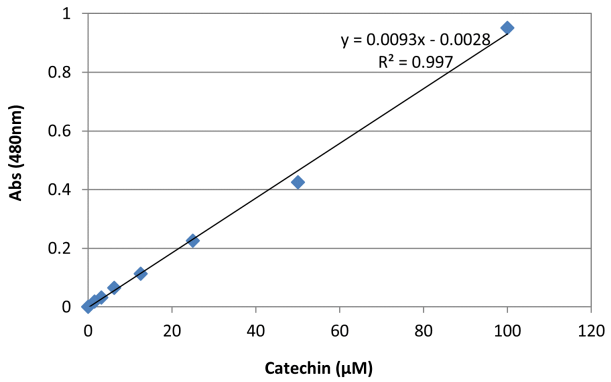

Figure 1. Catechin (µM) dose response was measured with Amplite® Colorimetric Phenolic Compounds (PC) Assay Kit in a 96-well white plate using a SpectraMax microplate reader (Molecular Devices). The signal was acquired at 480 nm.

DISCLAIMER

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