

Methyl purple

Chemical Properties

CAS No. : 8004-87-3

Formula:

Molecular Weight:

Storage: Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Methyl purple is an introduced quinone-imide redox dye that has been shown to be an exceptionally sensitive monitor of photosystem I activity in chloroplasts.
Targets(IC50)	Others,Photosystem (PS)
In vitro	<p>I. Monitoring Photosystem I Activity:</p> <p>1. Material Preparation:</p> <p>(1) Methyl Purple dye: It is usually dissolved in an appropriate buffer solution (such as PBS) at a concentration of 10-100 μM.</p> <p>(2) Chloroplasts: Isolated chloroplasts or leaf tissue.</p> <p>(3) Photosynthesis equipment: Use a spectrophotometer or fluorescence spectrometer to detect the absorption or fluorescence changes of Methyl Purple.</p> <p>(4) Electron transport inhibitor (optional): Photosystem II inhibitors such as DCMU can be used to evaluate PSI dysfunction.</p> <p>2. Steps:</p> <p>(1) Preparation of Methyl Purple solution: Dissolve Methyl Purple in an appropriate solvent or buffer to prepare a solution of the desired concentration.</p> <p>(2) Sample preparation: Incubate isolated chloroplasts or leaf tissue with Methyl Purple solution, usually for 10-30 minutes, to allow the dye to interact with PSI.</p> <p>(3) Activity measurement: Use a spectrophotometer or fluorescence spectrometer to measure the absorption or fluorescence changes of Methyl Purple, usually in the wavelength range of 500-600 nm. For example, the absorption or emission spectrum of Methyl Purple can reflect the changes in the red oxygen reduction state of PSI.</p> <p>(4) Result analysis: Compare the changes in the optical properties of Methyl Purple</p>

In vitro	<p>under different conditions (such as the presence or absence of electron transfer inhibitors) to understand the function of PSI.</p> <p>II. Photosynthesis efficiency study</p> <p>1. Material preparation:</p> <p>(1) Methyl Purple dye: Same as above.</p> <p>(2) Plant samples or chloroplasts: Plant samples or isolated chloroplasts.</p> <p>(3) Light source: Controlled light source is used to simulate different light intensities or conditions.</p> <p>(4) Oxygen or carbon dioxide monitoring system (optional): Used to more comprehensively study the photosynthesis process.</p> <p>2. Steps:</p> <p>(1) Sample preparation: Isolate chloroplasts or prepare plant samples.</p> <p>(2) Dye application: Add Methyl Purple dye to the sample.</p> <p>(3) Light treatment: Expose the sample to light of different intensities or conditions (e.g., high light intensity stress, low light, etc.).</p> <p>(4) Fluorescence/absorption measurement: Measure the fluorescence or absorption changes of Methyl Purple to correlate PSI activity and photosynthesis efficiency.</p> <p>The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.</p>
----------	---

Solubility Information

Solubility	<p>DMSO: 2.00 mg/mL, Sonication is recommended.</p> <p>(< 1 mg/ml refers to the product slightly soluble or insoluble)</p>
------------	---

Reference

- Graan T, Ort DR, Prince RC. Methyl purple, an exceptionally sensitive monitor of chloroplast photosystem I turnover: physical properties and synthesis. *Anal Biochem.* 1985 Jan;144(1):193-8.
- Lajkó F, Kadioglu A, Garab G. Involvement of superoxide dismutase in heat-induced stimulation of photosystem I-mediated oxygen uptake. *Biochem Biophys Res Commun.* 1991 Jan 31;174(2):696-700.
- Graan T, Ort DR. Quantitation of the rapid electron donors to P700, the functional plastoquinone pool, and the ratio of the photosystems in spinach chloroplasts. *J Biol Chem.* 1984 Nov 25;259(22):14003-10. PMID: 6389539.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481