



Product Information Sheet

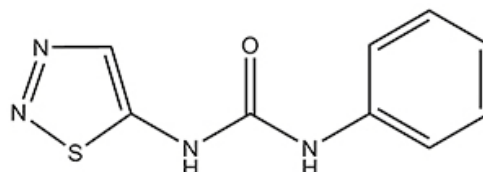
T888

Thidiazuron (>98%)

Synonyms: 1-Phenyl-3-(1,2,3-thiadiazol-5-yl)urea; TDZ
CAS: 51707-55-2
Formula: C₉H₈N₄OS
Mol. Weight: 220.3

Properties

Form: Powder
Appearance: White to Off-White Powder
Application: Cytokinin
Solubility: DMSO, 1 N NaOH/KOH
Storage Temp: -20 to 0 °C
Stock Solution Storage Temp: -20 to 0 °C
Typical Working Concentration: Varies by application. Concentration should be determined by end user.
Other Notes: Plant Tissue Culture Tested; For Research Use Only



Application Notes

Thidiazuron (TDZ), a urea-based cytokinin, is an active ingredient in Dropp®. It is a derivative of a N,N'-diphenylurea (DPU), which belongs to a substituted phenylurea class of compounds that exhibits similar cytokinin activity to that of adenine-based cytokinins. Its effect is sometimes at 1/10th to 1/100th the concentration of N⁶-substituted adenine-based cytokinins.² Unlike natural cytokinins, thidiazuron does not contain a purine ring.³ Additionally, thidiazuron is highly stable⁴ and contains two functional groups, phenyl and thiazol⁵. It has been reported that thidiazuron becomes less potent if either one of the functional groups is replaced.⁵

Typical working concentration of TDZ varies by plant species. In a study involving cotton (*Gossypium hirsutum* L.) cultivar 'Stoneville 519', thidiazuron concentrations ranging from 10 to 100 µM stimulated young leaves to abscise. It has been suggested that thidiazuron functions by stimulating the production of endogenous ethylene and therefore mediates the abscission of cotton leaves.⁶

A note on the Plant TC Listserv indicates that a 10 mM stock solution can be prepared by dissolving 22 mg of TDZ in a few drops of 1 N NaOH (or KOH) with vortexing. Bringing the volume up to 10 mL will produce a 10 mM solution. This protocol has not been confirmed by PhytoTech Labs.

Please Note: While PhytoTechnology Laboratories™ tests each lot of this product with two or more plant cell/ tissue culture lines, it is the sole responsibility of the purchaser to determine the appropriateness of this product for the specific plants that are being cultured and applications that are being used.

References

1. Merck 13, 9384
2. YIP, WK and SF Yang (1986), Effect of thidiazuron, a cytokinin-active urea derivative, in cytokinin-dependent ethylene production systems. *Plant Physiol.* 80:515-519.
3. Lu, Chin-Yi. 1993. The use of thidiazuron in tissue culture. *In Vitro Cell Developmental Biology.* 29:92-96.
4. Mok, David WS and Machteld Mok. 2001. Cytokinin metabolism and action. *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 52:89-118.
5. Murthy B. N. S., S. J. Murch, and Praveen K. Saxena. 1998. Thidiazuron: a potent regulator of *in vitro* plant morphogenesis. *In vitro Cell. Dev. Biol.* 34:267-275.
6. Suttle, Jefferey C. 1985. Involvement of ethylene in the action of the cotton defoliant thidiazuron. *Plant Physiol.* 78:272-276

PhytoTechnology Laboratories®

P.O. Box 12205; Shawnee Mission, KS 66282-2205

Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442

Web Site: www.phytotechlab.com

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