

Product Information

Moniliformin sodium salt from *Fusarium proliferatum*

Product Number **M 5269**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: C₄H₃O₃Na

Molecular Weight: 120.0

CAS Number: 71376-34-6

pK_a: 1.70

λ_{max}: 229 nm, 260 nm (H₂O, methanol)^{1,2}

Extinction coefficient: E^{mm} = 19.1 (H₂O)¹, 18.0
(methanol)² (229 nm); 5.6 (H₂O)¹, 5.0 (methanol)²
(260 nm)

Synonym: 3-hydroxycyclobut-3-ene-1,2-dione sodium salt

Moniliformin is a mycotoxin that occurs naturally in various strains of *Fusarium*, including *F. moniliforme*, *F. moniliforme* var. *subglutinans*, and *F. fusarioides*.¹⁻³ Moniliformin occurs naturally as the sodium or potassium salt.¹ Its toxicological properties have been studied in rats and include progressive muscular weakness, respiratory distress, and cyanosis.³ The isolation of moniliformin by ion exchange chromatography and by charcoal column chromatography has been described.²

A study on PK15 porcine kidney epithelial cells has used moniliformin derived from extracts of *Fusarium avenaceum* found in Norwegian cereals, where the extracts were analyzed by HPLC.⁴ Cultured spores from unpolished (rough) rice that exhibited *Fusarium* sheath rot disease or panicle blight have been shown to produce moniliformin.⁵ The inhibition of gluconeogenesis and cell viability in cultured primary chicken embryo hepatocytes by moniliformin and other *Fusarium* metabolites has been investigated.⁶

A method that combines HPLC with atmospheric pressure chemical ionization MS has been described for the analysis of moniliformin from cultures of *Fusarium subglutinans* and from naturally contaminated maize.⁷

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (10 mg/ml), yielding a clear, light yellow solution.

References

1. Cole, R.J. and Cox, R.H., Handbook of Toxic Fungal Metabolites, Academic Press (New York, NY: 1981), pp. 894-897.
2. Rabie, C. J., et al., Moniliformin, a mycotoxin from *Fusarium fusarioides*. J. Agric. Food Chem., **26(2)**:375-379 (1978).
3. Kriek, N. P., et al., Toxicity of a moniliformin-producing strain of *Fusarium moniliforme* var. *subglutinans* isolated from maize. Food Cosmet. Toxicol., **15(6)**, 579-587 (1977).
4. Morrison, E., et al., Mycotoxin production by *Fusarium avenaceum* strains isolated from Norwegian grain and the cytotoxicity of rice culture extracts to porcine kidney epithelial cells. J. Agric. Food Chem., **50(10)**, 3070-3075 (2002).
5. Abbas, H. K., et al., Mycotoxin production by *Fusarium proliferatum* isolates from rice with *Fusarium* sheath rot disease. Mycopathologia. **147(2)**, 97-104 (1999).
6. Wu, W., and Vesonder, R. F., Inhibition of gluconeogenesis in cultured chicken embryo hepatocytes by *Fusarium* metabolites. Nat. Toxins, **5(2)**, 80-85 (1997).
7. Sewram, V., et al., Determination of the mycotoxin moniliformin in cultures of *Fusarium subglutinans* and in naturally contaminated maize by high-performance liquid chromatography-atmospheric pressure chemical ionization mass spectrometry. J. Chromatogr. A, **848(1-2)**, 185-191 (1999).

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