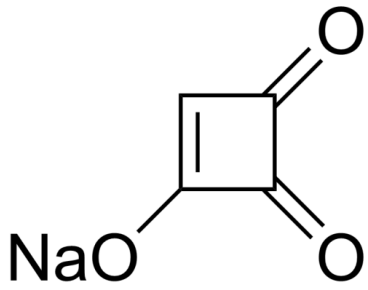
Data Sheet

Product Name:	Moniliformin (sodium salt)
Cat. No.:	CS-7510
CAS No.:	71376-34-6
Molecular Formula:	C_4HNaO_3
Molecular Weight:	120.04
Target:	Antibiotic; Fungal
Pathway:	Anti-infection
Solubility:	DMSO : ≥ 45 mg/mL (374.88 mM); H2O : 100 mg/mL (833.06 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

Moniliformin sodium salt is a potent mycotoxin isolate from Fusarium moniliforme. **In Vitro:** Fusarium moniliforme NRRL 6322 produces about 600 mg of recoverable moniliformin, a mycotoxic metabolite, per kg of corn grit medium. Several strains of Fusarium moniliforme produce in laboratory culture more than 800 mg of moniliformin per kg of growth substrate[1]. Monocytes-derived macrophages exposed to moniliformin during the differentiation process present a decrease of endocytosis ability, and a decrease of CD71 and HLA-DR expression[2]. **In Vivo:** Moniliformin is less toxic to mice, with an LD_{50} of 20.9 mg per kg for the females and 29.1 mg per kg of body weight for the males. As in the case of the chicks, mice surviving the toxin demonstrated no ill effects; the mice or chicks that died became recumbent in 4 to 6 h after treatment and died within 24 h. In 4-day-old chicken embryos, a sharp LD_{50} of 2.8 μg per embryo is obtained with no overt gross teratogenic effects in the survivors[1]. Rats treated with the highest dose of moniliformin show decreased activity followed by acute heart failure and death. The rats of the lower doses (<9mg/kg b.w.) show no signs of toxicity. The daily intake of moniliformin strongly reduces the phagocytic activity of neutrophils in all dose groups. The decrease continued in the satellite group during the follow-up period, indicating a severe impact on the immune system and a LOAEL value of 3mg/kg b.w. for moniliformin. Moniliformin is rapidly excreted into urine, ranging between 20.2 and 31.5% daily and shows no signs of accumulation. The concentration of moniliformin in faeces is less than 2%, which suggests efficient absorption from the gastrointestinal tract[3].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: [1][3]Rats: Moniliformin is prepared in water. In this experiment, 5 dose groups (3, 6, 9, 12 and 15 mg/kg moniliformin b.w.) of test animals are exposed to moniliformin for 28 days. Each group consists of 5 male Sprague-Dawley rats. The dose groups are determined based on our acute toxicity study of MON in rats. In addition, a control group administered with filtered tap water and two satellite groups (dosed 12 and 15 mg/kg b.w. moniliformin) are used. The two satellite groups are kept alive for an additional 14 days without treatment to detect possible delayed toxic effects and to follow up recovery[3].

Mice: Sterile aqueous solutions of moniliformin are injected intraperitoneally (0.2 mL) into five female and five male white mice, weighing about 25 g each, at concentrations equivalent to 0, 20, 25, 30, and 35 mg per kg of body weight. The mice are observed over a 4-day period, and LD_{50} values are determined[1].

References:

[1]. Burmeister HR, et al. Moniliformin, a metabolite of Fusarium moniliforme NRRL 6322: purification and toxicity. Appl Environ Microbiol. 1979 Jan;37(1):11-3.

[2]. Ficheux AS, et al. Effects of beauvericin, enniatin b and moniliformin on human dendritic cells and macrophages: an in vitro study. Toxicon. 2013 Sep;71:1-10.

[3]. Jonsson M, et al. Repeated dose 28-day oral toxicity study of moniliformin in rats. Toxicol Lett. 2015 Feb 17;233(1):38-44.

CAIndexNames:

3-Cyclobutene-1,2-dione, 3-hydroxy-, sodium salt (1:1)

SMILES:

O=C1C(C(O[Na])=C1)=O

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