

Product Data Sheet

Product Name: Momilactone B

Cat. No.: GC81597

Chemical Properties

Cas. No. 51415-08-8

Formula $C_{20}H_{26}O_4$

M.Wt 330.42

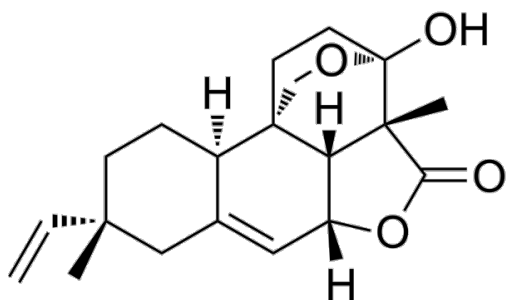
Solubility

Storage Store at 4°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Momilactone B is an inhibitor of α -amylase and α -glucosidase, with an IC_{50} of 146.85 μ g/mL against *Aspergillus oryzae* α -amylase and an IC_{50} of 612.03 μ g/mL against *Saccharomyces cerevisiae* α -glucosidase. Momilactone B upregulates the expression of p21 Waf1/Cip1, reduces the kinase activity of Cdk4 and Cdk6, induces cell cycle arrest and apoptosis in cancer cells, and triggers irreversible cell death via cell membrane damage. Momilactone B inhibits the growth of neighboring plant species and serves as a major contributing factor to the allelopathy of rice. Momilactone B can be used in studies related to rice allelopathy, type 2 diabetes, colon cancer and leukemia [1] [2] [3]

Caution: Product has not been fully validated for medical applications. For research use only.

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[4].

In Vitro, Momilactone B potently inhibits α -amylase from *Aspergillus oryzae*, with an IC₅₀ of 146.85 μ g/mL, and its inhibitory effect is positively correlated with concentration; it also potently inhibits α -glucosidase from *Saccharomyces cerevisiae*, with an IC₅₀ of 612.03 μ g/mL^[1]. Momilactone B (0.5-10 μ M; 24 h) reduces the viability of human colon cancer HT-29 and SW620 cells in a dose-dependent manner^[2]. Momilactone B (0.5-5 μ M; 72 h) induces dose-dependent cell membrane damage and irreversible cell death in human colon cancer HT-29 and SW620 cells^[2]. Momilactone B (0.5-5 μ M; 18 h) inhibits colony formation in human colon cancer HT-29 and SW620 cells^[2]. Momilactone B (0.25-2 μ g/mL; 48 h) reduces the viability of human monocytic leukemia U937 cells in a concentration-dependent manner^[4]. Momilactone B potently inhibits root and shoot growth of barnyard grass, with IC₅₀ values of 6.1 μ M and 6.3 μ M, respectively; moreover, at concentrations that produce phytotoxicity against barnyard grass, its growth inhibitory effect on rice seedlings is negligible^[3]. Momilactone B potently inhibits root and shoot growth of *E. colonum*, with IC₅₀ values of 5.0 μ M and 12.5 μ M, respectively^[3]. Momilactone B (0.66-3.84 μ M; 4 days) is secreted by rice seedlings, and its contribution rate to the growth inhibition of barnyard grass reaches 58.8%-81.9%. Moreover, a significant correlation exists between the concentration of Momilactone B and allelopathic activity among different rice varieties^[3]. Momilactone B (0.25-1.5 μ g/mL; 48 h) concentration-dependently arrests human monocytic leukemia U937 cells at the G1 phase of the cell cycle, and reduces the proportion of cells entering the S and G2/M phases. It also induces chromatin condensation and fragmentation, two markers of apoptosis, in human monocytic leukemia U937 cells in a concentration-dependent manner^[4]. Momilactone B (0.25-2 μ g/mL; 48 h) induces apoptosis in human monocytic leukemia U937 cells in a concentration-dependent manner, and induces cleavage of the apoptosis marker PARP in human monocytic leukemia U937 cells also in a concentration-dependent manner^[4]. Momilactone B (0.25-1.5 μ g/mL; 48 h) slightly reduces the protein level of cyclin E in human monocytic leukemia U937 cells, induces p21 expression in a p53-independent manner, inhibits the kinase activities of Cdk4 and Cdk6, dephosphorylates pRB, and enhances the binding of pRB to E2F-1 and E2F-4^[4].

References:

[1]. Quan NV, et al. Momilactones A and B Are α -Amylase and α -Glucosidase Inhibitors. *Molecules*

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[2]. Kim SJ, et al. Cytotoxic and antitumor activity of momilactone B from rice hulls. Journal of agricultural and food chemistry. 2007 Mar 07;55(5):1702-6.

[3]. Kato-Noguchi H. The Role of Momilactones in Rice Allelopathy. Journal of Chemical Ecology, 2013, 39: 175-185.

[4]. Park C, et al. Momilactone B induces apoptosis and G1 arrest of the cell cycle in human monocytic leukemia U937 cells through downregulation of pRB phosphorylation and induction of the cyclin-dependent kinase inhibitor p21Waf1/Cip1. Oncology reports. 2014 Apr;31(4):1653-60.

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