Natural Products

ChemFaces

Mahanine Datasheet

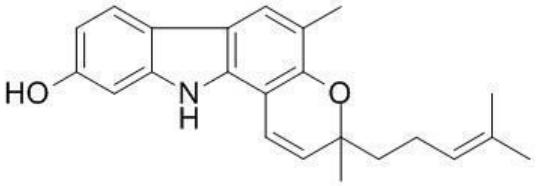
4th Edition (Revised in July, 2016)

[Product Information]

Name: Mahanine

Catalog No.: CFN92199

Cas No.: 28360-49-8



Purity: > 98%

M.F: $C_{23}H_{25}NO_2$

M.W: 347.5

Physical Description: Cryst.

Synonyms: Pyrano[3,2-a]carbazol-9-ol,3,11-dihydro-3,5-dimethyl-3-(4-methyl-3-pentenyl)-, (3R)-.

[Intended Use]

1. Reference standards;
2. Pharmacological research;
3. Synthetic precursor compounds;
4. Intermediates & Fine Chemicals;
5. Others.

[Source]

The leaves of *Murraya koenigii.*

[Biological Activity or Inhibitors]

Mahanine can enhance cisplatin-induced apoptosis and reduce its effective concentration ～5-8 folds, it also inhibits JAK1 and Src and subsequently promote proteasome-mediated degradation of STAT3; reveals that mahanine may be a prospective agent to reduce the concentration of cisplatin in adjunct for the treatment of cancer and thereby decreasing its toxicity.[1]

Mahanine shows antimutagenicity against heterocyclic amines such as Trp-P-1 with an IC50 of 5.2 uM, cytotoxicity against a tumor cell line HL60 with a MIC100 of 4.0 ug/mL, and antimicrobial activity against Bacillus cereus and Staphylococcus aureus with MIC100 values of 6.25 and 12.5 ug/mL, respectively.[2]

Mahanine inhibits growth and induces apoptosis in both androgen-responsive, LNCaP and androgen-independent, PC3 prostate cancer cells by targeting cell survival pathway.[3]

Mahanine can reverse an epigenetically silenced gene, RASSF1A in prostate cancer cells by inhibiting DNMT activity that in turn down-regulates a key cell cycle regulator, cyclin D1; it promises an encouraging therapeutic choice for advanced prostatic cancer.[4]

Mahanine, a carbazole alkaloid is a potent anticancer molecule, a DNA minor groove binding agent exerts cellular cytotoxicity with involvement of C-7-OH and -NH functional groups.[5]

Mahanine induces apoptosis involved reactive oxygen species (ROS)-mediated nuclear accumulation of PTEN and its interaction with p53/p73; it and 5-FU in combination exerted synergistic inhibitory effect on cell viability, this combination also enhances ROS production, increases tumour suppressor proteins and suppresses chemo-migration; reveals that mahanine can be a potential chemotherapeutic agent with efficacy to reduce the concentration of toxic 5-FU in colon cancer.[6]

Mahanine is a novel mitochondrial complex-III inhibitor induces G0/G1 arrest through redox alteration-mediated DNA damage response and regresses glioblastoma multiforme.[7]

Mahanine has apoptotic effects on human leukemic cells, mediated through crosstalk

between Apo-1/Fas signaling and the Bid protein and via mitochondrial pathways.[8]

[Solvent]

Chloroform, Dichloromethane, DMSO, Acetonen, etc.

[HPLC Method][9]

Mobile phase: Acetonitrile-H2O gradient elution;

Flow rate: 1.0 ml/min;

Column temperature: Room Temperature;

The wave length of determination: 254 nm.

[Storage]

2-8℃, Protected from air and light, refrigerate or freeze.

[References]

[1] Das R, Bhattacharya K, Samanta S K, *et al. Cancer Lett., 2014, 351(1):81-90.*

[2] Kazuhiko Nakahara, Gassinee Trakoontivakorn , N S A, *et al. J. Agr. Food Chem., 2002, 50(17):4796-802.*

[3] Sinha S, Pal B C, Jagadeesh S, *et al. Prostate, 2006, 66(12):1257–65.*

[4] Jagadeesh S, Sinha S, Pal B C, *et al. Biochem. Bioph. Res. Co., 2007, 362(1):212-7.*

[5] Samanta S K, Dutta D, Roy S, *et al. J. Med. Chem., 2013, 56(14):5709-21.*

[6] Das R, Bhattacharya K, Sarkar S, *et al. Apoptosis, 2014, 19(1):149-64.*

[7] Bhattacharya K, Bag A K, Tripathi R, *et al. Am. J. Cancer Res., 2014, 4(6):629-47.*

[8] Bhattacharya K, Samanta S K, Tripathi R, *et al. Biochem. Pharmacol., 2010, 79(3): 361-72.*

[9] Nagappan T, Ramasamy P, Wahid M E, *et al. Molecules, 2011, 16(11):9651-64.*

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