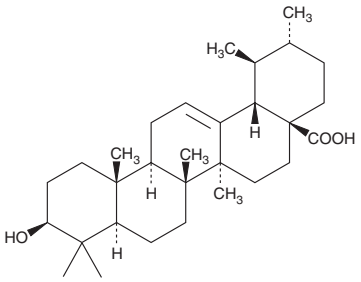
PRODUCT INFORMATION

Ursolic Acid

Item No. 10072

CAS Registry No.: 77-52-1
Formal Name: 3β-hydroxy-urs-12-en-28-oic acid
Synonyms: Bungeolic Acid, Maerotaine, Malol, NSC 4060, NSC 167406, Prunol
MF: $C_{30}H_{48}O_3$
FW: 456.7
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Ursolic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the ursolic acid in the solvent of choice. Ursolic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of ursolic acid in ethanol is approximately 0.5 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Ursolic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, ursolic acid should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Ursolic acid has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Ursolic acid is a pentacyclic triterpenoid that has been isolated from *M. pumila* and has diverse biological activities, including anticancer, hepatoprotective, anti-inflammatory, antioxidant, antimicrobial, and cardioprotective properties.[1-4] It inhibits the proliferation of HepG2 liver, MCF-7 breast, and Caco-2 colon cancer cells (EC_{50}s = 87.4, 14.4, and 34.4 µM, respectively).[2] Ursolic acid reverses increases in hepatic steatosis, levels of hepatic triglycerides and free fatty acids, and hepatic TNF-α, IL-1β, IL-6, and IL-8 mRNA expression in a dose-dependent manner in a high-fat diet-induced rat model of non-alcoholic fatty liver disease (NAFLD).[4] Ursolic acid also scavenges 2,2-diphenyl-1-picrylhydrazyl (DPPH) radicals (IC_{50} = 59.7 µg/ml) and inhibits the growth of several strains of Gram-positive and Gram-negative bacteria *in vitro* including *S. aureus*, *E. coli*, *P. aeruginosa*, *K. pneumoniae*, and *S. flexneri* (MICs = 32-512 µg/ml).[3]

References

1. Woźniak, Ł., Skąpska, S., and Marszałek, K. Ursolic acid--A pentacyclic triterpenoid with a wide spectrum of pharmacological activities. *Molecules* **20(11)**, 20614-20641 (2015).
2. He, X. and Liu, R.H. Triterpenoids isolated from apple peels have potent antiproliferative activity and may be partially responsible for apple's anticancer activity. *J. Agric. Food Chem.* **55(11)**, 4366-4370 (2007).
3. do Nascimento, P.G.G., Lemos, T.L.G., Bizerra, A.M.C., *et al.* Antibacterial and antioxidant activities of ursolic acid and derivatives. *Molecules* **19(1)**, 1317-1327 (2014).
4. Li, S., Meng, F., Liao, X., *et al.* Therapeutic role of ursolic acid on ameliorating hepatic steatosis and improving metabolic disorders in high-fat diet-induced non-alcoholic fatty liver disease rats. *PLoS One* **9(1)**:e86724, (2014).

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