

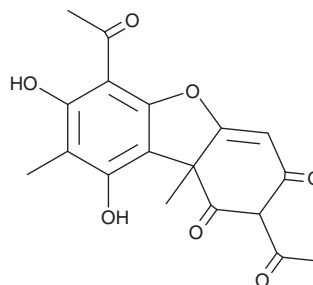
# PRODUCT INFORMATION



## Usnic Acid

Item No. 22585

**CAS Registry No.:** 125-46-2  
**Formal Name:** 2,6-diacetyl-7,9-dihydroxy-8,9b-dimethyl-1,3(2H,9bH)-dibenzofurandione  
**Synonym:** NSC 8517  
**MF:** C<sub>18</sub>H<sub>16</sub>O<sub>7</sub>  
**FW:** 344.3  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 233, 282 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Usnic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the usnic acid in the solvent of choice, which should be purged with an inert gas. Usnic acid is soluble in the organic solvent dimethyl formamide (DMF) at a concentration of approximately 2.5 mg/ml.

Usnic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, usnic acid should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Usnic acid has a solubility of approximately 0.02 mg/ml in a 1:40 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Usnic acid is a lichen metabolite with antioxidant, anticancer, antifungal, antiprotozoal, and antimicrobial activities.<sup>1-5</sup> Usnic acid (>50 mg/kg) reduces the number of indomethacin-induced gastric ulcers in rats through decreased lipid peroxidation and decreased myeloperoxidase activity.<sup>1</sup> It is fungicidal against *C. orthopsilosis* and *C. parapsilosis* (IC<sub>80</sub>s = 7.8 and 15.6 µg/ml, respectively) and bactericidal against seven vancomycin-resistant *E. faecalis* strains (MIC = 125 µg/ml).<sup>2,3</sup> Usnic acid (25 mg/kg, injected intrasessionally) reduces *L. amazonensis* parasite loads by 72.3% in footpads of infected mice.<sup>4</sup> It also reduces growth of A2780, HeLa, MCF-7, SK-BR-3, HT-29, HCT116, HL-60, and Jurkat cancer cells *in vitro* (IC<sub>50</sub>s = 48.5-199 µM).<sup>5</sup>

### References

1. Odabasoglu, F., Cakir, A., Suleyman, H., *et al.* Gastroprotective and antioxidant effects of usnic acid on indomethacin-induced gastric ulcer in rats. *J. Ethnopharmacol.* **103**(1), 59-65 (2006).
2. Elo, H., Matikainen, J., and Pelttari, E. Potent activity of the lichen antibiotic (+)-usnic acid against clinical isolates of vancomycin-resistant enterococci and methicillin-resistant *Staphylococcus aureus*. *Naturwissenschaften* **94**(6), 465-468 (2007).
3. Araújo, A.A., de Melo, M.G., Rabelo, T.K., *et al.* Review of the biological properties and toxicity of usnic acid. *Nat. Prod. Res.* **29**(23), 2167-2180 (2015).
4. Fournet, A., Ferreira, M.-E., Rojas de Arias, A., *et al.* Activity of compounds isolated from Chilean lichens against experimental cutaneous leishmaniasis. *Comp. Biochem. Physiol.* **116**(1), 51-54 (1997).
5. Bačkorová, M., Bačkor, M., Mikeš, J., *et al.* Variable responses of different human cancer cells to the lichen compounds parietin, atranorin, usnic acid and gyrophoric acid. *Toxicol. In Vitro* **25**(1), 37-44 (2011).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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