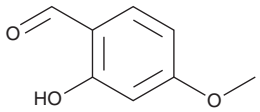
PRODUCT INFORMATION

2-Hydroxy-4-methoxybenzaldehyde

Item No. 30091

CAS Registry No.: 673-22-3
Synonyms: 4-Methoxysalicylaldehyde, NSC 155334
MF: $C_8H_8O_3$
FW: 152.1
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Synthetic



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

Laboratory Procedures

2-Hydroxy-4-methoxybenzaldehyde is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-hydroxy-4-methoxybenzaldehyde in the solvent of choice, which should be purged with an inert gas. 2-Hydroxy-4-methoxybenzaldehyde is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 2-hydroxy-4-methoxybenzaldehyde in these solvents is approximately 30 mg/ml.

Description

2-Hydroxy-4-methoxybenzaldehyde is a phenol found in *P. sepium* that has diverse biological activities.[1-3] It is active against Gram-positive (MICs = 100-200 µg/ml) and Gram-negative bacteria (MICs = 125-200 µg/ml), as well as the fungus *C. albicans* (MIC = 150 µg/ml).[1] 2-Hydroxy-4-methoxybenzaldehyde scavenges 2,2-diphenyl-1-picrylhydrazyl (DPPH) radicals in a cell-free assay (IC_{50} = 9.04 mg/ml) and acts as a metal chelator, inhibiting ferrozine-Fe^{2+} complex formation with an IC_{50} value of 2.31 mg/ml. It reduces production of the virulence factor staphyloxanthin in clinical isolates of methicillin-resistant *S. aureus* (MRSA) when used at a concentration of 200 µg/ml and decreases the expression of the MRSA virulence regulatory genes *saeS*, *geh*, *crtM*, and *sigB*.[2] 2-Hydroxy-4-methoxybenzaldehyde, when used in combination with the antibiotics amikacin (Item No. 15405), gentamicin, cefotaxime (Item No. 16040), vancomycin (Item No. 15327), or tetracycline (Item No. 14328), increases MRSA antibiotic sensitivity. It is also an intermediate in the synthesis of Schiff base-metal complexes with antiproliferative activity.[3]

References

1. Wang, J., Liu, H., Zhao, J., *et al.* Antimicrobial and antioxidant activites of the root bark essential oil of *Periploca sepium* and its main component 2-hydroxy-4-methoxybenzaldehyde. *Molecules* **15(8)**, 5807-5817 (2010).
2. Kannappan, A., Srinivasan, R., Nivetha, A., *et al.* Anti-virulence potential of 2-hydroxy-4-methoxybenzaldehyde against methicillin-resistant *Staphylococcus aureus* and its clinical isolates. *Appl. Microbiol. Biotechnol.* **103(16)**, 6747-6758 (2019).
3. Tyagi, P., Tyagi, M., Agrawal, S., *et al.* Synthesis, characterization of 1,2,4-triazole Schiff base derived *3d*-metal complexes: Induces cytotoxicity in HepG2, MCF-7 cell line, BSA binding fluorescence and DFT study. *Spectrochim. Acta. A. Mol. Biomol. Spectrosc.* **171**, 246-257 (2017).

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