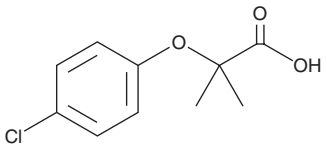
PRODUCT INFORMATION

Clofibric Acid

Item No. 21608

CAS Registry No.: 882-09-7
Formal Name: 2-(4-chlorophenoxy)-2-methyl-propanoic acid
Synonym: NSC 1149
MF: $C_{10}H_{11}ClO_3$
FW: 214.6
Purity: ≥98%
UV/Vis.: λ_{max}: 228, 280 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

Clofibric acid is supplied as a crystalline solid. A stock solution may be made by dissolving the clofibric acid in the solvent of choice, which should be purged with an inert gas. Clofibric acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of clofibric acid in these solvents is approximately 16, 2, and 14 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of clofibric acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of clofibric acid in PBS, pH 7.2, is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Clofibric acid is a peroxisome proliferator-activated receptor α (PPARα) agonist (EC_{50} = 50 µM in a transactivation assay) and the active metabolite of clofibrate (Item No. 10956).[1] It is formed from clofibrate by tissue and serum esterases.[2] Dietary administration of clofibric acid (0.067-0.22%) reduces serum cholesterol, phospholipid, and triglyceride levels in rats.[3] It decreases glutamate oxaloacetate transaminase (GOT) levels and increases glutamate pyruvate transaminase (GPT) and lactate dehydrogenase (LDH) levels, markers of xenobiotic stress, in the plasma of carp (*C. carpio*) when administered in tank water at a concentration of 10 µg/L.[4] Clofibric acid has been found in wastewater effluent.[5]

References

1. Giampietro, L., Laghezza, A., Cerchia, C., *et al.* Novel phenyldiazenyl fibrate analogues as PPAR α/γ/δ pan-agonists for the amelioration of metabolic syndrome. *ACS Med. Chem. Lett.* **10(4)**, 545-551 (2019).
2. Cayen, M.N. Metabolic disposition of clofibrate. *Drug Metabol. Drug Interact.* **3(1 & 2)**, 77-103 (1980).
3. Cayen, M.N., Ferdinandi, E.S., Greselin, E., *et al.* Clofibrate and clofibric acid: Comparison of the metabolic disposition in rats and dogs. *J. Pharmacol. Exp. Ther.* **200(1)**, 33-43 (1977).
4. Saravanan, M., Karthika, S., Malarvizhi, A., *et al.* Ecotoxicological impacts of clofibric acid and diclofenac in common carp (*Cyprinus carpio*) fingerlings: Hematological, biochemical, ionoregulatory and enzymological responses. *J. Hazard. Mater.* **195**, 188-194 (2011).
5. Tixier, C., Singer, H.P., Oellers, S., *et al.* Occurrence and fate of carbamazepine, clofibric acid, diclofenac, ibuprofen, ketoprofen, and naproxen in surface waters. *Environ. Sci. Technol.* **37(6)**, 1061-1068 (2003).

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