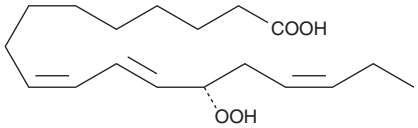
PRODUCT INFORMATION

13(S)-HpOTrE

Item No. 45220

CAS Registry No.: 67597-26-6
Formal Name: 13S-hydroperoxy-9Z,11E,15Z-octadecatrienoic acid
MF: $C_{18}H_{30}O_4$
FW: 310.4
Purity: ≥98%
UV/Vis.: λ_{max}: 235 nm
Supplied as: A solution in ethanol
Storage: -80°C
Stability: ≥2 years



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

Laboratory Procedures

13(S)-HpOTrE is supplied as a solution in ethanol. To change the solvent, evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of 13(S)-HpOTrE in these solvents is approximately 50 mg/ml.

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. If an organic solvent-free solution of 13(S)-HpOTrE is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of 13(S)-HpOTrE in PBS, pH 7.2, is approximately 1 mg/ml. More concentrated aqueous solutions of 13(S)-HpOTrE can be prepared using concentrated basic buffers (pH ≥ 8.0 and ionic strength ≥ 0.1 M). Add 400 µl of cold buffer (0˚C) per mg of 13(S)-HpOTrE and vortex vigorously until completely dissolved. Store aqueous solutions of 13(S)-HpOTrE on ice and use within twelve hours.

Description

13(S)-HpOTrE is a hydroperoxy fatty acid derivative of α-linolenic acid. 13(S)-HpOTrE is a monohydroperoxy polyunsaturated fatty acid produced in soybeans by the action of soybean lipoxygenase 2 (LO-2) on esterified linolenic acid.[1] Incubation of soybean seedling biomembranes with soybean LO-2 catalyzes the formation of both 9- and 13-HpOTrE in a molar ratio of 10:1.[1] In plants, 13(S)-HpOTrE can be metabolized by the hydroperoxide lyase pathway producing aldehyde and oxoacid fragments, or by the hydroperoxide dehydratase pathway producing jasmonic acid.[2-4] Treatment of tomato leaves with 13-HpOTrE causes induction of proteinase inhibitors, simulating the normal response to wounding.[5] This data suggests that in plants 13(S)-HpOTrE may participate in a lipid-based signaling system initiated by insect and pathogen attack.

References

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3. Salch, Y.P., Grove, M.J., Takamura, H., *et al. Plant Physiol.* **108**, 1211-1218 (1995).
4. Simpson, T.D. and Garnder, H.W. *Plant Physiol.* **108**, 199-202 (1995).
5. Farmer, E.E. and Ryan, C.A. *Plant Cell* **4**, 129-134 (1992).

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