

2-Ethylhexyl trans-4-methoxycinnamate

Chemical Properties

CAS No.:	83834-59-7
Formula:	C ₁₈ H ₂₆ O ₃
Molecular Weight:	N/A
Appearance:	N/A
Storage:	0-4°C for short term (days to weeks), or -20°C for long term (months).

Biological Description

Description	2-Ethylhexyl-p-methoxycinnamate is a sunscreen agent.
In vitro	This study aims to assess the removal of a set of non-polar pollutants in biologically treated wastewater using ozonation, ultraviolet (UV 254 nm low pressure mercury lamp) and visible light (Xe-arc lamp) irradiation as well as visible light photocatalysis using Ce-doped TiO ₂ . The compounds tracked include UV filters, synthetic musks, herbicides, insecticides, antiseptics and polyaromatic hydrocarbons. METHODS AND RESULTS:Raw wastewater and treated samples were analyzed using stir-bar sorptive extraction coupled with comprehensive two-dimensional gas chromatography (SBSE-CG × GC-TOF-MS). Ozone treatment could remove most pollutants with a global efficiency of over 95% for 209 μM ozone dosage. UV irradiation reduced the total concentration of the sixteen pollutants tested by an average of 63% with high removal of the sunscreen 2-Ethylhexyl trans-4-methoxycinnamate (EHMC), the synthetic musk 7-acetyl-1,1,3,4,4,6-hexamethyltetrahydronaphthalene (tonalide, AHTN) and several herbicides. Visible light Ce-TiO ₂ photocatalysis reached ~70% overall removal with particularly high efficiency for synthetic musks. In terms of power usage efficiency expressed as nmol kJ(-1), the results showed that ozonation was by far the most efficient process, ten-fold over Xe/Ce-TiO ₂ visible light photocatalysis, the latter being in turn considerably more efficient than UV irradiation. In all cases the efficiency decreased along the treatments due to the lower reaction rate at lower pollutant concentration. The use of photocatalysis greatly improved the efficiency of visible light irradiation. The collector area per order decreased from 9.14 ± 5.11 m(2) m(-3) order(-1) for visible light irradiation to 0.16 ± 0.03 m(2) m(-3) order(-1) for Ce-TiO ₂ photocatalysis. The toxicity of treated wastewater was assessed using the green alga <i>Pseudokirchneriella subcapitata</i> .

Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble
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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 °C for 6 months; - 20 °C for 1 month. Please use it as soon as possible.

Reference

1. Energy efficiency for the removal of non-polar pollutants during ultraviolet irradiation, visible light photocatalysis and ozonation of a wastewater effluent. *Water Res.* 2013 Oct 1;47(15):5546-56.
1. Energy efficiency for the removal of non-polar pollutants during ultraviolet irradiation, visible light photocatalysis and ozonation of a wastewater effluent. *Water Res.* 2013 Oct 1;47(15):5546-56.

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