



Product Information

Capsaicin

Product Number **M 2028**

Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{18}H_{27}NO_3$

Molecular Weight: 305.4

CAS Number: 404-86-4

λ_{max} : 227 and 281 nm¹

Extinction coefficient: $E^{mM} = 7.0$ (227 nm) and 2.5 (281 nm).

Capsaicin samples in 0.5 M sodium nitrite with 0.02 M sodium tungstate warmed 15 minutes below 65 °C had a maximum absorbance at 430 nm and a molar absorptivity of 4,800.²

This product is a neurotoxin component of cayenne pepper. It stimulates excitatory afferent sensory neurons, causing hypothermia, neurogenic inflammation, and pain. This is then followed by subsequent desensitization.^{3,4} Capsaicin is the primary irritant used in pepper spray: initial administration causes intense pain. Prolonged treatment causes insensitivity to painful stimuli and induces selective degeneration of certain primary sensory neurons.⁵ TLC, HPLC, and GC-MS analysis of capsaicinoids in pepper spray have been published.⁶ Capsazepine is a competitive antagonist of this chemical (capsaicin) and resiniferatoxin.⁷

Capsaicin has been used in neuronal studies to deplete Substance P.^{8,9} It is also listed as a nerve growth factor that antagonizes the neurotoxic action of capsaicin on primary sensory neurons.¹⁰

Product No. M 2028 is produced by Sigma and replaces the deleted Product No. M 3264 which was prepared by an outside supplier. Solvents used by Sigma in the preparation of this product are acetonitrile, ethyl ether, and pentanes. These might be present in trace quantities as contaminants, but Sigma has not measured them.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is dissolved at 50 mg/ml in chloroform to yield a clear, colorless to faint yellow solution. This chemical is practically insoluble in cold water and freely soluble in alcohol, benzene, and chloroform.

Storage/Stability

Solutions in acetonitrile stored in the freezer were stable for a few months as determined by HPLC. No formal solution stability studies have been done.

References

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