

Effect of safranal on extracellular hippocampal levels of glutamate and aspartate during kainic acid treatment in anesthetized rats

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Abstract

In this study, the effect of safranal, a constituent of *Crocus sativus* L., pretreatment on concomitant changes in the extracellular hippocampal levels of EAA (glutamate and aspartate) following systemic administration of KA was investigated in anesthetized rats. Safranal (72, 70 mg/kg or 791 mg/kg, i.p.) was injected 15 min before KA (10 mg/kg, i.p.). A group of rats also received DZP (10 mg/kg, i.p.) 20 min prior to KA administration. The basal hippocampal concentrations of glutamate and aspartate were estimated to be 0.01 ± 0.02 μ M and 0.28 ± 0.01 μ M, respectively. Basal EAA levels were not affected by pretreatment with safranal. Following KA injection, there was a significant increase ($p < 0.001$) in the extracellular glutamate and aspartate levels (about 2-fold and 3-fold, respectively) at 15 min after injection. However, the kainite-evoked release of EAA was significantly reduced by DZP ($p < 0.001$) and safranal (791 mg/kg, i.p.; $p < 0.001$). The results of this study show that acute systemic injection of safranal reduces the extracellular concentrations of glutamate and aspartate in the rat hippocampus following KA administration. © Georg Thieme Verlag KG Stuttgart.

Reaxys Database Information

Author keywords

Crocus sativus; Diazepam (DZP); Iridaceae; Kainic acid (KA); Saffron; Safranal

Indexed Keywords

EMTREE drug terms: aspartic acid; *Crocus sativus* extract; diazepam; glutamic acid; kainic acid; safranal; unclassified drug

EMTREE medical terms: amino acid analysis; amino acid brain level; animal experiment; article; controlled study; drug effect; hippocampus; male; nonhuman; rat; Wistar rat

MeSH: Anesthesia; Animals; Aspartic Acid; Cyclohexenes; Dose-Response Relationship; Drug; Excitatory Amino Acid Agonists; Glutamic Acid; Hippocampus; Kainic Acid; Male; Rats; Rats, Wistar; Terpenes

Medline is the source for the MeSH terms of this document.

Species Index: *Crocus sativus*; Iridaceae; Rattus

Chemicals and CAS Registry Numbers: aspartic acid, 57-84-8, 7899-03-2; diazepam, 439-14-0; glutamic acid, 11070-18-1, 138-10-8, 57-86-0, 7899-00-4; kainic acid, 487-79-6; Aspartic Acid, 57-84-8; Cyclohexenes; Excitatory Amino Acid Agonists; Glutamic Acid, 57-86-0; Kainic Acid, 487-79-6; safranal, 116-26-7; Terpenes

Manufacturers: Drug manufacturer: Fluka.

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