

FULL TEXT LINKS



Epilepsy Behav. 2016 Sep;62:27-34. doi: 10.1016/j.yebeh.2016.06.037. Epub 2016 Jul 20.

Rosmarinic acid is anticonvulsant against seizures induced by pentylenetetrazol and pilocarpine in mice

Jéssica Grigoletto ¹, Clarissa Vasconcelos de Oliveira ¹, Ana Claudia Beck Grauncke ¹,
Thaíze Lopes de Souza ¹, Naieli Schiefelbein Souto ², Mayara Lütchemeyer de Freitas ¹,
Ana Flávia Furian ³, Adair Roberto Soares Santos ⁴, Mauro Schneider Oliveira ⁵

Affiliations

PMID: 27448240 DOI: [10.1016/j.yebeh.2016.06.037](https://doi.org/10.1016/j.yebeh.2016.06.037)

[Free article](#)

Abstract

Epilepsy is a chronic neurological disease characterized by spontaneous recurrent seizures (SRS). Current anticonvulsant drugs are ineffective in nearly one-third of patients and may cause significant adverse effects. Rosmarinic acid is a naturally occurring substance which displays several biological effects including antioxidant and neuroprotective activity. Since oxidative stress and excitotoxicity play a role in the pathophysiology of seizures, we aimed the present study to test the hypothesis that rosmarinic acid displays anticonvulsant and disease-modifying effects. Female C57BL/6 mice received rosmarinic acid (0, 3, 10, or 30mg/kg; p.o.) 60min before the injection of pentylenetetrazol (PTZ, 60mg/kg; i.p.) or pilocarpine (300mg/kg, i.p.). Myoclonic and generalized tonic-clonic seizure latencies and generalized seizure duration were analyzed by behavioral and electroencephalographic (EEG) methods. The effect of acute administration of rosmarinic acid on mice behavior in the open-field, object recognition, rotarod, and forced swim tests was also evaluated. In an independent set of experiments, we evaluated the effect of rosmarinic acid (3 or 30mg/kg, p.o. for 14days) on the development of SRS and behavioral comorbidities in the pilocarpine post-status epilepticus (SE) model of epilepsy. Rosmarinic acid dose-dependently (peak effect at 30mg/kg) increased the latency to myoclonic jerks and generalized seizures in the PTZ model and increased the latency to myoclonic jerks induced by pilocarpine. Rosmarinic acid (30mg/kg) increased the number of crossings, the time at the center of the open field, and the immobility time in the forced swim test. In the chronic epilepsy model, treatment with rosmarinic acid did not prevent the appearance of SRS or behavioral comorbidities. In summary, rosmarinic acid displayed acute anticonvulsant-like activity against seizures induced by PTZ or pilocarpine in mice, but further studies are needed to determine its epilepsy-modifying potential.

Keywords: Anticonvulsant activity; Anxiolytic activity; Behavior; Comorbidities; Epilepsy; Rosmarinic acid.

Copyright © 2016 Elsevier Inc. All rights reserved.

[PubMed Disclaimer](#)

Related information

[MedGen](#)

[PubChem Compound \(MeSH Keyword\)](#)

LinkOut - more resources

Full Text Sources

[ClinicalKey](#)

[Elsevier Science](#)

Other Literature Sources

[scite Smart Citations](#)

Medical

[MedlinePlus Health Information](#)