

## Anticonvulsant effects of erythrinian alkaloids from *Erythrina mulungu*: preliminary evaluation on a chronic animal model basis.

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**Introduction:** Temporal Lobe Epilepsy (TLE) is responsible for 40% of diagnosed cases of epilepsy. The search of new antiepileptic drugs (AEDs) is of relevance to understanding of this neurological disorder and also for a better treatment of patients. The plant *E. mulungu* Mart. ex Benth. (Leguminosae-Papilionaceae) has been used in the folk medicine and also in industrial phytoterapical preparations due to its sedative, anticonvulsant, hypnotic and anxiolytic properties. Indeed, recent reports have pointed to a marked anticonvulsant effects of *E. mulungu* flower and leaf hidroalcoholic extract in different acute animal models of epilepsy. Those anticonvulsant effects have been attributed to (+)-erythravine, (+)-11- $\alpha$ -hidroxi-erythravine and/or erysothrine alkaloids isolated from the plant. However, no experimental approach has been used to evaluate the anticonvulsant effects of these alkaloids in a chronic animal model of epilepsy. **Objective:** This work aim in evaluate the anticonvulsant effects of (+)-erythravine, (+)-11- $\alpha$ -hidroxi-erythravine and erysothrine alkaloids on rats submitted to the chronic experimental model of epilepsy using pilocarpine as seizures inducer in comparison to the conventional AEDs based on neuroethological parameters of analysis. **Methods:** Stainless-steel guide cannulas (0.7×15 mm) were implanted in male Wistar rats (200-220 g) according to stereotaxic coordinates to access the right lateral ventricle. After surgery recovery, the animals were subjected to 3 hours of *Status Epilepticus* (SE) by intracerebroventricular injection of 1  $\mu$ L pilocarpine (2.4 mg/ $\mu$ L). After 1 hour of SE blocking by tiopental (30 mg/Kg; i.p.), animals were divided into control and experimental groups (n = 5-8). Treatments with saline (0.9%; i.c.v) (Negative Control), diazepam (2mg/kg; i.p), carbamazepine (120mg/kg; i.p.), phenytoin (60mg/kg; i.p.), (Positive Controls) and (+)-erytravine (1 $\mu$ g/ $\mu$ L; i.c.v.) erysothrine (1 $\mu$ g/ $\mu$ L; i.c.v.) or (+)-11- $\alpha$ -hydroxy-erytravine (1 $\mu$ g/ $\mu$ L; i.c.v.) were repeated during four days once a day. Neuroethological parameters like latency to seizure; the perceptual incidence of recurrent seizures and evolution to death were evaluated during a period of 15 days. **Results:** Animals treated with erithrinian alkaloids presented times of latency to seizure higher or similar to those observed to animals treated with diazepam, carbamazepine and phenitoin, while only animals subjected to treatment with saline evolved to death in a significant level. Moreover, the incidence of recurrent seizures were significantly decreased in positive control groups and animals treated with erithrinin alkaloids in a similar extent, while the recurrence to seizure was very higher to animals treated with saline. **Conclusion:** These results validate the anticonvulsant effects of erithrinian alkaloids in a chronic scale of epilepsy model in addition to those previously reported in an acute animal model approach by our research group. Also, these results are of relevance especially when considered the ethnopharmacological/biotechnological potential of *E. mulungu*.

**Keywords:** Anticonvulsants; Chronic epileptic seizures; *E. mulungu*.

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