

Fisetin Exerts Antiepileptic Effect by Inhibiting Oxidative Stress in Iron-induced Epilepsy

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Abstract—Epilepsy, one of the most frequent consequences of head trauma in young adults, is defined by recurring seizures secondary to traumatic brain injury. Fisetin, a natural bioactive phytonutrient flavonoid has been reported to exert anticonvulsive and influence in experimental seizure models. Trauma-induced seizures could not be prevented by anticonvulsants was reported in some clinical studies. Hence, if fisetin treatment has any effect on epileptiform electrographic activity in iron-induced epilepsy (animal model for trauma-induced epilepsy) was investigated. Present study describes the effect of pretreatment with fisetin on iron-induced focal epileptiform activity in the rat brain. Pretreatment with fisetin was found to prevent development of iron-induced epileptiform electrographic activity. In order to determine the mechanism by which fisetin may exert antiepileptic effect, its effect on epileptogenesis-associated biochemical parameters such as peroxidative stress and Na^+, K^+ -ATPase (sodium pump) was also studied. Fisetin was found to counteract epileptogenesis-associated changes in these parameters. In addition Morris water maze and open field tests showed that fisetin treatment also attenuated the cognitive defects caused due to epileptic activity. These findings suggested the antiepileptic effect of fisetin in iron-induced epilepsy in rat brain.