(-) Pseudosemiglabrin: Natural Molecule with Interesting Biologically Activity

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Abstract

(-)-Pseudosemiglabrin is the major 5-dexyflavone isolated from *Tephrosia purpurea*. It was isolated from the plant in a biologically directed phytochemical study looking for bronchodilator compounds using *ex-vivo* model. Detailed mechanistic study revealed that (-)-pseudosemiglabrin induces the bronchodilator effect mainly via antimuscarinic followed by Ca++ inhibitory like effects. Exploring the effect of (-)-pseudosemiglabrin on the smooth muscles of the isolated rabbit jejunum demonstrated a relaxant effect. However, (-)-pseudosemiglabrin act on this tissue by dual Ca++ channels and PDE-enzymes inhibitory effect. *In-vivo* experiments for the bronchodilator effect aligned with the *ex-vivo* results. Treatment with (-)-pseudosemiglabrin significantly prolonged the pre-convulsion time induced by exposure of male guinea pigs to histamine vapours. The compound was also able to control diarrhoea induced to in mice using castor oil. (-)-pseudosemiglabrin showed promising effect when tested against pilocarpine-induced convulsion. (-) pseudosemiglabrin dose-dependently alleviated pilocarpine-induced epilepsy, as revealed by the complete repression of convulsions and 100% survival rate in mice. Interestingly, at the same time (-)-pseudosemiglabrin significantly enhanced mice's locomotor activities in contrast to the effect of the standard drug diazepam. All the brain GABA, SLC1A2, GABARα1 levels, glutamate decarboxylase activity, and SLC1A2 and GABARα1mRNA expression were enhanced by (-)-pseudosemiglabrin. Moreover, (-)-pseudosemiglabrin showed a neuroprotective effect as it abolish the histopathological changes induced by pilocarpine.