Possible participation of nitric oxide/cyclic guanosine monophosphate/protein kinase C/ATP-sensitive K + channels pathway in the systemic antinociception of flavokawin B.

Abstract

The possible mechanisms of action in the antinociceptive activity induced by systemic administration (intraperitoneal, i.p.) of flavokawin B (FKB) were analysed using chemical models of nociception in mice. It was demonstrated that i.p. administration of FKB to the mice at 0.3, 1.0, 3.0 and 10 mg/kg produced significant dose-related reduction in the number of abdominal constrictions. The antinociception induced by FKB in the acetic acid test was significantly attenuated by i.p. pre-treatment of mice with l-arginine, the substrate for nitric oxide synthase or glibenclamide, the ATP-sensitive K+ channel inhibitor, but was enhanced by methylene blue, the non-specific guanylyl cyclase inhibitor. FKB also produced dose-dependent inhibition of licking response caused by intraplantar injection of phorbol 12-myristate 13-acetate, a protein kinase C activator (PKC). Together, these data indicate that the NO/cyclic guanosine monophosphate/PKC/ATP-sensitive K+ channel pathway possibly participated in the antinociceptive action induced by FKB.

Keyword: Flavokawin B; Antinociceptive activity; Nitric oxide.