Zerumbone-induced antinociception: involvement of the L-arginine-nitric oxide-cGMP -PKC-K+ ATP channel pathways.

ABSTRACT

This study investigated the antinociceptive effects of zerumbone in chemical behavioural models of nociception in mice. Zerumbone given through intraperitoneal route (i.p.) produced dose-related antinociception when assessed on acetic acid-induced abdominal writhing test in mice. In addition, the i.p. administration of zerumbone exhibited significant inhibition of the neurogenic pain induced by intraplantar (i.pl.) injection of capsaicin and bradykinin. Likewise, zerumbone given by i.p. route reduced the nociception produced by i.pl. injection of glutamate and phorbol myristate acetate (PMA). The antinociception caused by zerumbone in the acetic acid test was significantly attenuated by i.p. pre-treatment of mice with l-arginine (nitric oxide precursor) and glibenclamide (ATP-sensitive K(+) channel inhibitor). However, the antinociception of zerumbone was enhanced by methylene blue (non-specific gyanylyl cyclase inhibitor). Together, these results indicate that zerumbone produces pronounced antinociception against chemical models of nociception in mice. It also strongly suggests that the l-arginine-nitric oxide-cGMP-PKC-K(+) ATP channel pathways, the TRPV1 and kinin B2 receptors play an important role in the zerumbone-induced antinociception.

Keyword: Antinociceptive; Zerumbone; Nitric oxide.