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Species differences in the prokinetic effects of ginger.

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Abstract

This study describes the prokinetic actions of the aqueous extract of ginger (Zingiber officinale). Ginger extract (Zo.Cr), which tested positive for saponins, terpenes, phenols, flavonoids and alkaloids, showed a spasmogenic effect in isolated guinea-pig ileum with 8-50 times more potency than in rabbit jejunum and ileum and rat stomach fundus and ileum. Spasmogenicity in all the gut preparations except in guinea-pig ileum was atropine-sensitive. Zo.Cr exhibited a stimulant effect in vivo in mice and enhanced the intestinal transit of charcoal meal. A spasmolytic effect, mediated via Ca2 + antagonist activity, was also exhibited by Zo.Cr, reflected in terms of inhibition of spontaneous contractions, K+ (80 mM)-induced contractions and displacement of Ca2 + dose-response curves. The ginger pure compounds (6-shogaol, 6-gingerol, 8-gingerol and 10-gingerol) also exhibited a spasmolytic activity, which reduced with the increasing size of the side chain in their chemical structures. The study showed that the aqueous extract of ginger exhibits species-specific spasmogenicity in gut tissues of rabbit and rat (muscarinic-type) while through an uncharacterized pathway in guinea-pig ileum, along with a dormant relaxant effect, mediated via the blockade of voltage-dependent Ca2 + channels.

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