Effect of Quercetin on Spontaneous Contraction and Peroxyl Radicals-Induced Alterations of Spontaneous Contraction of Longitudinal Strips of Rabbit Ileum

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Abstract:

The aim of the present study is to evaluate the effect of quercetin on the spontaneous contraction and free radicals-induced alteration of the rythmic contraction of longitudinal strips of rabbit ileum in vitro. The contractile activity of these longitudinal strips was characterized by a mean tension of 0.84 ± 0.02 g and a frequency of 10.47 ± 0.37 cpm. 30 and 100 µM quercetin decreased the maximal tension of spontaneous contractions by 34.8% and 46.0%, respectively. Peroxyl radicals derived from 2,2`-Azobis (2-methylpropionamidine) (ABAP) decomposition led during the first two minutes to an abrupt arrest of the spontaneous contractile contractions of longitudinal strips and a decrease of the basal tone. An increase of 16.5% of the mean tension and a reduction of the frequency of the contractions (from 11.47 ± 0.43 cpm to 6.36 ± 0.39 cpm) was observed after 30 minutes of incubation. Quercetin (100 µM) prevented the disappearance of the spontaneous contractions during the first minutes after the addition of ABAP, and lowered the ABAP-induced tension increase by 30.7%. These results provide a pharmacological basis for the traditional use of quercetin-rich herbal medicines for the relief and treatment of gastrointestinal disorders.

Keywords:

Longitudinal strips, Ileum, Quercetin, Contractile activity, peroxyl radicals.