

Abstract (en)

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Physiological regulation of the function of the large intestine is neurohumoral. The neural part of this regulation implies the vegetative nervous system, which is crucial for the control of the gastrointestinal tract (GIT) motility. Concerning the humoral part of the regulation, recent studies showed that angiotensin II (Ang II) causes contraction of the colonic smooth muscle and, thus, can also influence the motility of the colon. However, there are no known studies that have described this process in detail. The aims of this work were (1) to compare the reactivity of the longitudinal and circular muscles of the rat distal colon to potassium chloride (KCl), acetylcholine (ACh) and Ang II, (2) to compare the observed results between male and female rats, and (3) to characterize the receptors mediating the response to Ang II. For purpose of the project, adult, 10-12 weeks old Wistar Han rats of both genders were used. Strips of the the rat distal colon were mounted in organ baths along their longitudinal or circular axis, and isometric responses were obtained. In both genders, the reactivity (g/g) of the circular muscle was higher than that of the longitudinal muscle. In the response to KCl, ACh and Ang II gender differences were observed only in the circular muscle. Concerning the response to Ang II, it seems that AT₁ receptors mediate contraction of the rat distal colon smooth muscle, while the AT₂ receptors mediate smooth muscle relaxation.