



Indian Journal of Experimental Biology
Vol. 63, December 2025, pp. 1028-1035
DOI: 10.56042/ijeb.v63i12.10904

INTERNATIONAL JOURNAL OF SCIENCE, COMMUNICATION AND POLICY RESEARCH
NISSPR
सीएसआईआर-जिह्वर

Effects of capsaicin on expression of adipokines in gastrointestinal system of rats

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Received 4 May 2024; revised 23 January 2025

Capsaicin is a major bioactive compound of hot peppers, with effects such as preventing gastric ulcers and inhibiting gastric acid secretion, and suggested to have mostly beneficial effects in the gastrointestinal system. Adipokines are bioactive proteins that regulate biological processes such as energy homeostasis, glucose and lipid metabolism, appetite and immunity. We aimed to detect the possible effects of orally taken capsaicin on the expression of some adipokines in the digestive tract sections of rats by immunohistochemistry. The control group (n=10) was fed with standard rat chow, while the experimental group (n=10) was fed with chow containing 0.04% capsaicin. For immunohistochemical stain, samples were obtained from the gastric, duodenal and pancreatic tissues of rats. The tissue sections of all groups were stained for adiponectin, leptin, ghrelin, resistin and visfatin. For adiponectin and ghrelin there was no difference between two groups in the duodenum, stomach, and pancreatic tissue. For leptin, staining was more intense in the experimental group in pancreatic tissue, but no difference was observed between the groups in the duodenum or stomach. For resistin, no immune reaction was observed in the duodenum, whereas in the stomach the staining was higher in the experimental group. For visfatin, in duodenum, the immune reaction was more intense in the experimental group. Our findings showed that capsaicin caused some changes in the expression of adiponectin, leptin, ghrelin, resistin and visfatin in the digestive tract. Therefore, it was suggested that capsaicin may affect some functions of adipokines such as appetite, glucose and lipid metabolism regulation.

Keywords: Adipokine, Capsaicin, Duodenum, Immunohistochemistry, Pancreas, Stomach