


 **Current Issue**

 **Browse Issues**

 **Search**



 **About this Journal**

 **Instruction to Authors**

 **Online Submission**

 **Subscription**

 **Contact Us**



 **RSS Feed**

## Acta Medica Iranica

2009;47(4) : 76-84

### Role of Oxygen-free radicals on the motility of rat ileum effects of Xanthine plus Xanthine Oxidase

Izadi Mood N, Prasad k, Izadi Mood N



#### Abstract:

The major objective of the present study was to characterize the effects of oxidants generated b xanthine (X) plus xanthine oxidase (XO) on isolated rat ileum motility. The effects of three concentrations of X/XO on the basal tone of the rat ileum preparation were studied for 20 minutes. Developed tensions were measured in mg/mg tissues and then expressed as percentage of baseline tension. Also the effects of 2X concentration of X/XO in the presence and absence of superoxide dismutase, catalase, mannital, histidine, and deferoxamine were evaluate. The results were expressed as mean  $\pm$  SE. Xanthine puls xanthine exidase produced relaxation of ileum. Superoxide dismutase (a superoxide anion metabolizer) and catalase (a hydrogen peroxide scavenger) did not protect ileum from effects of X/XO suggesting that neither superoxide anion nor hydrogen peroxide involve in X/Xo- induced relaxation of ileum. The results of this study suggest that hydrogen peroxide formed extracellularly by X/XO may enter the cells and interact with intracellular iron of form a highly reactive oxidant. Hydroxyl radical. The finding that two powerful hydroxyl radical scavengers, dimethylthiourea (DMTU) and mannitol offered protection against X/XO-induced relaxation of ileum suggest formation of hydroxyl radical withing the cells. Pretreatment with deferoxamin, a potents iron chelator, reduced the relaxation of ileum, indicating that hydroxyl radical plays an important role in mediating the X/XO –induced relaxation of ileum. In addition.The ability of exogenously administered histidine to reduce relaxation suggests that singlet oxym is another oxygen derivative which is responsible for relaxation of ileum-induced by X/XO.

#### Keywords:

Isolated ileum muscle . Xanthine . Xanthine oxidase . Hydroxyl radical . Singlet oxygen . Superoxide dismutase

TUMS ID: 1131

Full Text HTML  Full Text PDF  1869 KB

top ▲

[Home](#) - [About](#) - [Contact Us](#)

TUMS E. Journals 2004-2009  
Central Library & Documents Center  
Tehran University of Medical Sciences

Best view with Internet Explorer 6 or Later at 1024\*768 Resolutions