

Metabolism of acetaldehyde by rat isolated aortic rings: Does endothelial tissue contribute to its extrahepatic metabolism?

Tampier, Lutske

Cariz, Segundo

Quintanilla, Maria Elena

Acetaldehyde (AcH) metabolism in isolated aortic rings was studied by assessing in vitro-added AcH disappearing rate by head space gas chromatography. It was found that AcH was metabolized by aortic rings or by homogenates prepared in 0.1 M phosphate buffer containing Triton X-100, by an NAD-dependent enzyme with characteristics similar to those of aldehyde dehydrogenase (AIDH) present in mitochondria from rat liver and brain. This enzyme appears to be present in the vascular endothelium, since the action of aortic rings showed a remarkable decrease by its removal.

Extrahepatic metabolism of AcH was assessed by the differences between AcH levels found in samples of blood obtained from the suprahepatic vein, carotid artery, femoral vein, and tail cut of rats. The in vitro activity of aortic rings, as well as the extrahepatic AcH metabolism, were significantly decreased by pretreatment of rats with disulfiram. The wide distribution of vascular endothelium throughout the body suggests tha