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Histoenzymic study on the liver of rhino (*Rhinoceros unicornis*)

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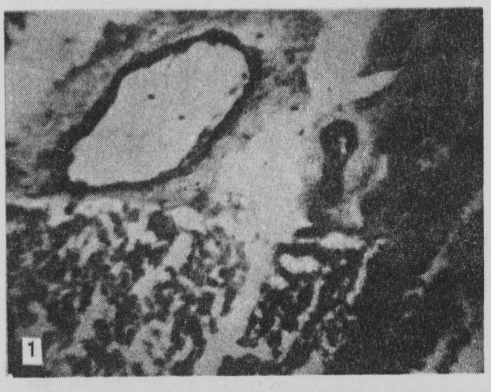
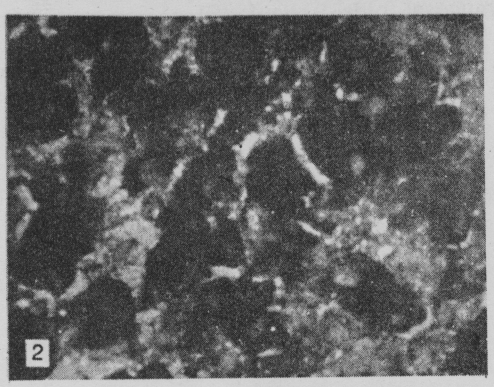
The present study is an attempt to elucidate the histoenzymic distribution of certain enzymes in the liver of one-horned rhinoceros.

Pieces of liver tissues from 2 adult one-horned rhinos belonging to the State Zoo, Guwahati, were utilized in the present study. The tissues were collected within 2 hr after the death of the animals. Cryostat sections, 10 μm thick, of these tissues were later treated by standard procedures for adenosine-triphosphatase (ATPase) (Chayen *et al.* 1973) and glucose-6-phosphate-(G-6-PD), malate-(MDH), lactate-(LDH) dehydrogenases (Pearse 1980).

The histoenzymic reaction appeared more evident in the hepatocytes and Kupffer cells within hepatic lobule, and interlobular branches of bile-duct, portal vein and hepatic artery in the portal area. Vascular ATPase reaction was most conspicuous in the endothelium of portal vein and hepatic artery which showed intense ATPase reaction (Fig. 1). This definitely indicated higher ATPase content of rhino liver at α-ketoglutarate level, i. e. at the transition step from protidic to glucidic metabolism. In addition to blood vessels, biliary epithelium also showed strong reaction for ATPase. Dehydrogenases like G-6-PD, MDH and LDH exhibited almost similar reaction in the different structures of rhino liver (Fig. 2). However, there was no specific zonation of reaction for these enzymes in the hepatocytes of rhino liver. Kupffer cells in the sinusoids showed relatively less stronger reaction for dehydrogenases.





Figs 1-2. 1. Section of rhino liver showing ATPase reaction in blood vessels of portal area. Method of Chayen *et al.* (1973). ×280. **2.** Section of rhino liver showing perinuclear granular MDH reaction in hepatocyte. Nitro BT Method × 400.

In the portal area, biliary epithelial and vascular endothelial cells showed moderate granular reaction for the dehydrogenases under study. However, total content of oxidative enzymes belonging to different metabolic pathways in rhino liver showed approximate

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intensities in order being LDH> MDH> G-6PD.

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