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### SUCCINATE-DEHYDROGENASE IN THE TISSUES OF ALBINO RATS INFECTED WITH *TRYPANOSOMA EVANSI*

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THE growth of trypanosomes in the tissues of host damages the connective tissues<sup>1</sup>. Most of the studies on *Trypanosoma evansi*, a member of brucei-group trypanosomes<sup>2</sup>, are confined to pathogenecity and morphology<sup>3</sup> and less emphasis has been given on pathological physiology and oxidative function during trypanosomiasis. Reports on other parasitic protozoa, particularly of malaria, indicate impairment of respiration and oxidative phosphorylation in the host tissues<sup>4-6</sup>. The present investigation was undertaken to study whether or not *T. evansi* altered the activity of oxidative enzymes. Succinate-dehydrogenase, an important enzyme of TCA cycle, was

selected for the study. The enzyme activity in relation to the severity of infection was studied in various tissues like liver, kidney, spleen, brain and muscle of albino rats infected with *T. evansi*.

A bovine strain of *T. evansi* was maintained in albino rats through syringe passage. The male albino rats were divided into 4 groups containing 10 each. One of these groups was used as control and the remaining 3 groups were intraperitoneally infected with 10<sup>6</sup> trypanosomes. Thereafter, the blood obtained from the tail of the rats was daily examined for the presence of parasites. After the onset of infection, the parasitemia was counted on haemocytometer. The animals were killed by decapitation and tissues like liver, kidney, muscle, spleen and brain were isolated in ice-jacketed containers from 1-3 groups of rats on the first, second and third day of infection respectively. The tissues from control were also collected on the last day of the experiment. Tissue samples were homogenized in 0.25 M sucrose solution and centrifuged at 2500 rpm for 15 min. The supernatant was used to assay the enzyme activity. The activity of succinate-dehydrogenase (SDH) was assayed by the modified method of Nachlas *et al* as described by Pramelamma *et al*<sup>7</sup>. The protein content was measured by the method of Lowry *et al*<sup>8</sup>.

Literature survey showed only a single report on lowered SDH activity in the liver tissue of *T. cruzi* infected mice. The decrease was attributed to cellular necrosis<sup>9</sup>. The present investigation reveals a significant decrease in SDH activity in various tissues of *T. evansi* infected rats (table 1) which is associated with severity of infection. Brucei-group of trypanosomes cause necrosis of hosts connective

**Table 1** Activity levels of SDH in different tissues of albino rats infected with *Trypanosoma evansi*.

Tissues	Control	Days of infection		
		1st day	2nd day	3rd day
Liver	0.17 ± 0.005	0.12 ± 0.005 *(-29)	0.05 ± 0.003 *(-71)	0.05 ± 0.001 *(-71)
Kidney	0.2 ± 0.008	0.17 ± 0.02 *(-15)	0.14 ± 0.004 *(-30)	0.12 ± 0.001 *(-40)
Muscle	0.25 ± 0.04	0.24 ± 0.01 **(-4)	0.08 ± 0.001 *(-68)	0.04 ± 0.003 *(-84)
Spleen	0.1 ± 0.002	0.04 ± 0.005 *(-60)	0.03 ± 0.001 *(-70)	0.03 ± 0.003 *(-70)
Brain	0.12 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.07 ± 0.002 *(-42)

(Values are expressed (mean of 10 samples ± SE) in μmoles of formazan formed/mg protein/hr). Figures in parantheses indicate the % decrease \*P < 0.001 \*\*P > 0.05.

tissues resulting in the degeneration of mitochondria<sup>1</sup>. These trypanosomes also cause destruction of perivascular tissues. According to Goodwin<sup>1</sup>, tissues anoxic due to vascular damage caused by these parasites probably decrease the tissue pH sufficient to activate the lysosomal enzymes, thereby causing further destruction of host cells. The decrease in SDH activity, can, therefore, be attributed to necrosis of tissues, consequently the loss of mitochondria. It is also evident that *T. evansi* produces definite pathological and physiological lesions in host tissues since the activity of SDH was reported to be absent in *T. evansi* by Marshall<sup>10</sup>.

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## ANNOUNCEMENT

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### VITH INTERNATIONAL SYMPOSIUM ON SURFACTANTS IN SOLUTION NEW DELHI, INDIA, 18-22 AUGUST 1986.

This Symposium is the continuation of the series of symposia dealing with the behavior of surfactants in solution. The first symposium was held in 1976 under the title "Micellization, Solubilization and Microemulsions" in Albany; the second was held under the title "Solution Chemistry of Surfactants" in Knoxville in 1978; the third was held in Potsdam in 1980 and was entitled "International Symposium on Solution Behavior of Surfactants: Theoretical and Applied Aspects." In 1982 it was deemed appropriate to assign a general title to these biennial events and after some deliberations it was decided that a very apropos title would be "Surfactants in Solution" as both the aggregation and adsorption behaviors of surfactants were considered. So the 4th symposium was held in 1982 in Lund, Sweden under this new title, and the most recent (5th) took place in July 1984 in Bordeaux, France. All of these symposia have been very well attended by researchers from many parts of the world, and these have become the premier forums to discuss the latest research anent surfactants in solution.

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