

Concentrations of cyanide greater than 0.25 mM completely inhibited the oxygen uptake of *L. donovani* promastigotes in culture (108 cells/ml). The  $K_i$  value for cyanide inhibition indicated the presence of a single terminal cytochrome oxidase. In the presence of 3.0 mM amytal oxygen uptake was 74% of that in controls. Antimycin A at 2.3  $\mu$ M gave complete inhibition of oxygen uptake. Azide at 3.5 mM halved oxygen uptake but salicylhydroxamic acid at 3.0 mM was totally without effect. It is concluded that the respiration of *L. donovani* promastigotes is similar to that in mammalian cells; there was no evidence of an alternative terminal oxidase of the type found in African trypanosomes.