

Abstract

The effect of various metabolic inhibitors on the rate of oxygen consumption by procyclic culture forms of *Trypanosoma congolense* utilizing proline as substrate was investigated. Cyanide inhibited the rate of oxygen consumption by 81.0 +/- 6.7%, malonate inhibited the rate by 51.6 +/- 1.6% and Antimycin A by 73.1 +/- 5.9%. A combination of cyanide and malonate inhibited the rate of oxygen consumption by 84.9 +/- 6.7% while a combination of antimycin A and malonate inhibited the rate by 81.6 +/- 7.6%. Rotenone had no effect on the rate of respiration except when the intact cells were first permeabilized by digitonin after which rotenone decreased the rate of respiration by 20-30%. Salicylhydroxamate (SHAM) did not have any effect on the rate of oxygen consumption. Enzymes involved in the catabolism of proline with high activities were: proline dehydrogenase, alpha-ketoglutarate dehydrogenase, succinate dehydrogenase, fumarase, NADP-linked malic enzyme, alanine aminotransferase and malate dehydrogenase. Activities of 1-pyrroline-5 carboxylate dehydrogenase, glutamate dehydrogenase, aspartate aminotransferase and NAD-linked malic enzyme were detectable but lower. The end products of proline catabolism were alanine and glutamate. Unlike the case in *Trypanosoma brucei brucei* aspartate was not detected. Possible pathways of proline catabolism in procyclic culture forms of *T. congolense* and of electron transfer are proposed