

# Abstract

Iron is an essential nutrient for metabolism in almost all living organisms. Its importance for many crucial cellular processes originates primarily from the flexibility of available redox potentials. However, the high toxicity of free iron ions is well known. For most organisms, iron is simultaneously and paradoxically essential and toxic.

Iron acquisition is crucial for parasitic organisms because it is needed for multiplication in hosts. Many studies have examined the relationship between iron availability and parasite development as a primary factor of virulence. These experiments commonly use chelators, chemical compounds that bind specifically and with high affinity iron ions, and are especially used for iron overload treatment. This thesis summarizes the influence of iron overload or deprivation in the host on the development of parasitic organisms and the impact of chelating agents on the virulence of selected parasitic protists, including the *Plasmodium*, *Leishmania*, *Trypanosoma*, *Trichomonas* and *Tritrichomonas* genera.