

Abstract

Chagas disease, sleeping sickness and leishmaniasis are diseases occurring mainly in developing areas of Africa, America and Asia. They are caused by parasitic kinetoplastids from the genus *Trypanosoma* and *Leishmania*. These protozoans undergo morphologic transformations during their development leading to changes of their properties. They are characterized by complex mechanisms that allow them to evade the host's immunity. At the same time, because of these mechanisms and selection pressures, they are able to subsequently develop resistance to used drugs. The diseases caused by protozoa are classified as "neglected tropical diseases". The research and development of drugs against them is heavily underfunded. Currently used drugs are expensive, have a number of side effects, and due to lack of usage regulation develop resistance. The work first generally presents human parasites of the class Kinetoplastida. It further describes the treatment of diseases caused by the characterized species and focuses on a summary of currently used drugs, their mechanism, resistance and potential new drugs in clinical phases.

Key words: kinetoplastids, *Trypanosoma*, *Leishmania*, treatment, disease, mechanism of action, resistance, nitroreductase