Review Article

# Resistant leishmaniasis chemotherapy: Present status of drug development

**Pallab Ghosh[1*], Subhasish Mondal[2]**

[1]Department of Pharmacognosy, Himalayan Pharmacy Institute, Majhitar, Rangpo, Sikkim, India

[2]School of Pharmacy, The Neotia University, Sarisha, Diamond Harbour Road, West Bengal, India

## Abstract

Leishmaniasis or kala-azar, principally emphasising on visceral leishmaniasis (VL) has been one of the most ignored tropical disease for decades despite of its significant epidemic in tropical and subtropical areas. Out of twenty intracellular protozoan parasite species of *Leishmania*, *Leishmania donovani* and *L. infantum* have been the most prevalent species that causes Leishmaniasis. Major systemic toxicities, high ceiling pharmaconomics, non-effectiveness of the existing therapy and emergence of resistance development are the major areas that escalate the treatment failures further. Presently pentavalent antimonials come in first line therapy and failure of which the second line drug like Amphotericin B normally considered. Antineoplastic agent like miltefosine introduced as first effective oral treatment for VL; but development of resistance keeps the therapy in vein. Recently, Andrographolide proven to be the new categories exerts significant antiproliferative agent that exerts significant effects on *Leishmania donovani* parasite life cycle. Initially sodium stibogluconate (Sb) was proven clinically effective but due to increasing number of resistance the existing therapy is becoming harder presently. In this scenario, multiple trials has been tried out for development of new therapy especially emphasising on development of potential formulations using nanotechnology is in the pipe-line, providing site-specific drug delivery with lesser side effects. The present review has being tried out to focus on the development of drug delivery system using nano-formulation against resistant Leishmaniasis.

**Keywords:** Resistant leishmaniasis, chemotherapy, antileishmanial drug, nano-formulations, andrographolide

***Mail id for correspondence:** pallabpharmtech@gmail.com

Received 21 September 2020; Revised 05 December 2020; Accepted 16 December 2020

**PHARMAWAVE 2020:45-50**.