

In vitro antileishmanial activity of bisabolol

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Leishmaniasis are neglected diseases caused by protozoa of the genus *Leishmania* spp. The main clinic manifestations are cutaneous (CL) and visceral leishmaniasis (VL). It is widely distributed in Asia, Europe, the Middle East, Africa and the Americas. In Latin America, the disease has been described in at least 12 countries, 90% of which in Brazil. About 1.3 million new cases are reported annually, with 200-400 thousand cases of VL, and 0.7-1.3 million people affected by CL. In recent years, there has been a great advance in the prevention and diagnosis of leishmaniasis, with the treatment of patients being the main prophylactic measure, although it has several limitations, such as side effects and reduced efficacy of available drugs. For this reason the World Health Organization (WHO) encourages the search for new drugs or formulations to overcome or minimize these limitations. Thus, the use of natural products, derived from plants, is stimulating research and development of new antileishmanial agents with therapeutic efficacy and reduced side effects. (-)- α -Bisabolol is a sesquiterpene alcohol found in different plant taxa and it is industrially used, as in cosmetics and dermatological preparations. The aim of this study was to evaluate the *in vitro* efficacy of (-)- α -bisabolol for the treatment of CL and VL. The cytotoxicity assay (CC₅₀) was performed on HepG2 cell line by the MTT colorimetric method. Inhibitory concentration (IC₅₀) values were determined by the resazurin colorimetric assay on WHO reference strains *Leishmania (L.) amazonensis* (MHOM/BR/1989/Ba199) and *Leishmania (L.) infantum* (MCAN/BR/2002/BH401). Then, the selectivity index (SI), established by the ratio CC₅₀/IC₅₀, was calculated and values greater than 10 are considered effective and selective for *Leishmania* spp. (-)- α -Bisabolol showed CC₅₀ value 304.81 \pm 84.17 μ g/mL on HepG2 cell line. IC₅₀ against *L. amazonensis* was 5.39 \pm 2.27 μ g/mL while for *L. infantum* was 9.91 \pm 1.96 μ g/mL. SI was 56.55 and 30.76 for *L. amazonensis* and *L. infantum*, respectively. In conclusion, favourable SI values were determined for (-)- α -bisabolol, confirming its leishmanicidal activity against *L. infantum* and *L. amazonensis* without presenting considerable cellular cytotoxicity. Thus, (-)- α -bisabolol is a promising natural product for the treatment of VL and CL.

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