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Antileishmanial, cytotoxicity and metacaspase gene activities of green tea extract and glucantime alone or in combination against *Leishmania tropica* stages and their apoptotic and necrotic effects**Iraj Sharifi and M Sadoghi**

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Leishmaniasis remains a serious global health challenge with no effective therapeutic drug. This study was aimed to evaluate the antileishmanial, cytotoxicity and metacaspase gene expression activities of green tea extract (Epigallocatechin 3-O-Gallate (EGCG)) and glucantime alone or in combination on *L. tropica* promastigotes and amastigotes by colorimetric assay and macrophage model. Moreover, the apoptotic and necrotic values were assessed by flow cytometry analysis. EGCG was prepared by maceration and various concentrations of EGCG or glucantime (10, 25, 50, 75 and 100 mg/ml) was prepared. After standard time of 72 hours treatment of promastigotes, optical density was measured by ELISA to determine the IC₅₀ value (50% inhibitory concentration). For clinical stage, intramacrophage-amastigotes were incubated at various concentrations of EGCG alone or in combination with glucantime (at minimum inhibitory concentration). The overall antileishmanial potency of EGCG coupled with glucantime was greater than EGCG or glucantime alone. No cytotoxicity was induced by EGCG, metacaspase gene was expressed and the extract induced a good index of apoptosis, a possible mechanism of parasite death. Further investigations are essential to elucidate the exact mechanism of action of this potent antioxidant in the chemistry of oxidative stress and its biological activities in clinical setting.

Biography

Iraj Sharifi is a Professor of Medical Parasitology, obtained his PhD from University of Illinois, USA and ever since, he has been teaching and doing research studies at the School of Medicine and Leishmaniasis Research Center, Kerman University of Medical Sciences, Iran. He has been the Dean of Faculty of Medicine for 4 years, Vice-Chancellor of Research for 5 years, Chancellor of the Kerman University of Medical Sciences for 13 years and Director of Kerman Leishmaniasis Research Center for 10 years. He has published 135 articles (75 international and 60 Persian).

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