Biological effects of metallic compounds with quinolines

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A recent review on quinolines showed a great variety of synthesized compounds and their biological activities as antimalarial, anti-inflammatory, analgesic, anthelmintic and antibacterial properties[1], providing a vast field of application of isolated species. However, no study relating the metallic compounds to these species was mentioned. The current study aimed not only to evaluate the *in vitro* biological effects of metallic compounds with quinolines (**1**-**7**) in peripheral blood, cultures of RAW cells and fungi but also to analyze the cytotoxicity of these compounds in peripheral blood and the interference of the compounds in human coagulation cascade. The results suggest that whenever the compounds get in contact with peripheral blood cells (erythrocytes, leukocytes and platelets), there is a significant decrease in hematological parameters, especially in the first dilution. In subsequent dilutions, however, these parameters remain constant. The results obtained from the coagulation cascade are complemented by the ones from the differential complete blood count, demonstrating that they are not dose-dependent; in other words, the compounds in the cells exert their activity on the proteins that compose the coagulation cascade. This may be a beneficial effect once the diluted concentrations may not affect the hematological cytotoxicity, neither interfere with the coagulation cascade. On the other hand, the studied compounds induced an inflammatory response. When complex **6** led to an increase in the expression of cytokines TNF-α and TGF-β1, it was demonstrated that this complex is related to pro- and anti-inflammatory pathways. Complex **3**, in turn, led to an increase in TNF-α expression, indicating that it is involved with pro-inflammatory pathway, whereas complex **4** caused an increase in TGF-β1 expression, thus involved with anti-inflammatory pathway. In the concentrations used in this study, the complexes did not prove to be effective against *Candida albicans*, and no fungicidal or fungistatic effect could be observed. So, it is believed that they may not have penetrated the cell membrane of the fungus.

1.Marella A, Tanwar O.P, Saha R, Ali M.R, Srivastava S, Akhter M, Shaquiquzzaman M, Alam M.M. *Saudi Pharmaceutical Journal*. **2013**; *21*;1–12.

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