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In vivo assessment of the antischistosomal activity of curcumin loaded nanoparticles versus praziquantel in the treatment of *Schistosoma mansoni*

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Abstract:

Schistosomiasis is a serious parasitic infection affecting millions worldwide. This study aimed to explore the anti-schistosomal activity of curcumin and curcumin loaded gold-nanoparticles (Cur-GNPs) with or without praziquantel (PZQ). We used six groups of the C57BL/6 mice in which five groups were infected with *Schistosoma Mansoni* (*S. mansoni*) cercariae and exhibited, separately, to different treatment regimens of curcumin, curcumin loaded nanoparticle, and PZQ, in addition to one untreated group which acts as a control. Mice were sacrificed at the 8th week where both worms and eggs were counted in the hepatic and porto-mesenteric vessels in the liver and intestine, respectively, in addition to a histopathological examination of the liver granuloma. Curcumin caused a significant reduction in the worms and egg count (45.45%) at the 3rd week. A significant schistosomicidal effect of PZQ was found in all groups. Cur-GNPs combined with PZQ 97.4% reduction of worm burden in the 3rd week and the highest reduction in the intestinal and hepatic egg content, as well, besides 70.1% reduction of the granuloma size. The results suggested the curcumin in combination with PZQ as a strong schistosomicidal regimen against *S. mansoni* as it alters the hematological, biochemical, and immunological changes induced.

Key words: *Schistosomiasis*- curcumin- Praziquantel- *Schistosoma mansoni*