

## Comparative evaluation of silver nanoparticles and human platelet rich-plasma versus traditional therapy in treatment of chronic experimental *Toxoplasmosis*

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Toxoplasmosis is a worldwide parasitic disease infecting about one third of human population. Currently, approved drugs are not capable of clearing chronic infection in human. The present work aimed to evaluate for the first time a novel combination between (spiramycin and human platelet rich plasma), in addition to (spiramycin and silver-nanoparticles) in treating murine experimental toxoplasmosis using parasitological, biochemical, histopathological and immunohistochemical studies. Seventy-seven Swiss albino male mice were divided into seven groups as follows: (GI): non-infected control group; (GII): infected non-treated control; (GIII): infected spiramycin treated group; (GIV): infected silver nanoparticles (AgNPs) treated group; (GV): infected human PRP treated group; (GVI): infected and treated with a combination of spiramycin and AgNPs; (GVII): infected and treated with a combination of spiramycin and human PRP. Obtained results demonstrated that (spiramycin and AgNPs) treated group showed significant reduction of *T. gondii* tissue cysts number, the lowest level of serum malondialdehyde (MDA), remarkable improvement in pathological changes in

different tissues of mice e.g. brain and liver and weak expression of EGFR in brain tissues of mice compared to infected control group. Moreover, AgNPs administered alone produced minimal anti-Toxoplasma results, whereas their combination with spiramycin exhibited significant therapeutic efficacy. In conclusion, combination therapy of spiramycin and AgNPs could be considered as a novel potential adjuvant therapy to ameliorate the pathologic, toxic and inflammatory effects of toxoplasmosis on both the brain and liver tissues in the immuno-competent mice.

### **Keywords:**

*Toxoplasma gondii*, Human platelet rich plasma, Spiramycin, Silver nanoparticles, epidermal growth factor receptor.

### **Biography**

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