Nitric oxide is a potent, non-specific molecule that can mediate activated macrophage cytotoxicity against a variety of intracellular and extracellular infectious agents. For example, it plays a role in host defense against *Toxoplasma gondii*, *Leishmania major* amastigotes, and *Plasmodium* species. The aim of this study was to determine whether serum nitric oxide levels in humans are related to the degree of resistance or susceptibility to *Plasmodium falciparum* malaria and whether they correlate with the clinical course of *Leishmania donovani* infections.

Nitric oxide levels in plasma were measured by reduction of its serum surrogates, nitrate to nitrite by *Pseudomonas oleovarans* nitrate reductase followed by a colorimetric quantitative measure of nitrite by the Greiss reaction. Malaria plasma samples were obtained from semi immune adults and non-immune children with cerebral malaria. Absolute parasitaemia in malaria patients was determined. Similarly, plasma samples from patients with kala-azar obtained and the nitric oxide levels obtained were correlated with the clinical course of leishmaniasis.

It was found that nitric oxide production in individuals partly immune to malaria did not correlate with protective immunity (n=268; p>0.05). Furthermore serum nitrate levels in patients treated with antimalarial drugs, azithromycin and doxycycline were significantly different (n=25; t=6.964; p<0.001). Nitric oxide levels were significantly higher in individuals with cerebral malaria compared to those with the mild disease (n=9; t=1.8595; p<0.05). A transient elevation in serum nitric oxide correlated with disease with disease regression in Kala-azar.