A Study on the Effect of *Ganoderma lucidum* (W.Curt.: Fr.) Lloyd in Indian HIV Carriers

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Over the past decade, substantial progress has been made in defining strategies for treatment of disease caused by human immunodeficiency virus (HIV), in which natural products can serve as a source of structurally novel chemicals that are worth investigating as specific inhibitors of HIV as well as its essential enzymes, protease (PR), and reverse transcriptase (RT). Therefore, it is necessary to identify and develop new anti-HIV agents without adverse side effects and viral resistance. *Ganoderma lucidum* (Reishi), belonging to the higher Basidiomycetes, appears to be very safe because oral administration of the extract did not display any toxicity. A literature survey revealed that the medicinal effect of *G. lucidum* was not investigated in India, and, hence, the present study was carried out to investigate the effect of supplementation of *G. lucidum* in Indian HIV carriers.

*Ganoderma lucidum* is one of the valuable crude drugs, which has been used in China and Japan as a traditional Chinese medicine or folk medicine for the treatment of various diseases. In the present study, 25 confirmed HIV-1 human subjects were selected based on the inclusion and exclusion criteria and administered with fruit body of *G. lucidum* for 90 days. Prior to and after 90 days of supplementation with *G. lucidum*, the level of HIV viral load, lymphocyte enumeration (percentage of CD₃, CD₄, CD₈, and absolute CD₄, CD₈ counts), total leukocyte count, WBC differential count, and IgA, IgG, IgM, and liver function tests were estimated.

Estimation of HIV viral load revealed that viral load was not increased in HIV carriers after supplementation of *G. lucidum*, which indicates that the replication of the human immunodeficiency virus was inhibited in HIV carriers. But there was no significant decrease of HIV viral load. It was observed that the mean percentage of CD₃ and CD₈ were not changed significantly after supplementation, but the percentage of CD₄ was significantly increased from 18.77 ± 3.25 to 23.89 ± 4.04. However, the increase was statistically significant (*p* < 0.01). Similarly, mean absolute CD₄ count was not altered, but mean absolute CD₈ count also increased from 211.60 ± 56.97 (cells/mL) to 355.60 ± 90.73 (cells/mL). This increase was statistically significant (*p* < 0.01). Total leukocyte count, WBC differential count, and IgA, IgM, and IgG levels were not altered significantly in HIV carriers. The results of liver function tests obtained also indicated that the supplementation of *G. lucidum* was harmless because they did not show any toxic effects in HIV carriers. It is concluded that the supplementation of *G. lucidum* mushroom may reduce the risk of developing AIDS in Indian HIV carriers.