

# BIOAVAILABILITY & BIOEQUIVALENCE: PHARMACEUTICAL R & D SUMMIT

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## Hepatoprotective activity of aqueous seed extract of *Nigella sativa* against highly active antiretroviral therapy induced hepatotoxicity in rats

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**Background:** Liver is a metabolically active organ responsible for many vital life functions. It performs many activities that are critical for survival. Due to its important activities, the liver is exposed to a number of insults and is one of the body's organs most subject to injury. In spite of tremendous advances in modern medicine, there are hardly any reliable drugs that protect the liver from damage and/or help in regeneration of hepatic cell. It is, therefore, necessary to search for effective and safe herbal drugs for the treatment of liver disease to replace currently used drugs of doubtful efficacy and safety.

**Aim of the Study:** The aim of this study is to investigate the hepatoprotective activity of aqueous extract of *Nigella sativa* seed in highly active antiretroviral therapy (Lamivudine, Zidovudine and Efavirenz) administered rats.

**Materials & Methods:** 60 rats weighed between 150-200 g were randomly divided into six groups and each group was comprised of ten rats. Rats in group I were administered with distilled water. Rats in group II were administered with highly active antiretroviral therapy only. Rats in groups III-VI were administered 100, 200, 400 and 800 mg/kg *Nigella sativa* plus highly active antiretroviral therapy respectively. The treatments were given orally for 28 consecutive days. On the 29th day, all rats were sacrificed under light diethyl ether anesthesia; blood samples were collected for the assessment of biochemical parameters, while liver tissue was used for histopathological assessment.

**Results:** Serum levels of liver enzymes ALT, AST, ALP, and GGT were significantly ( $p < 0.05$ ) increased and albumin concentration was significantly decreased in animals treated with highly active antiretroviral therapy as compared to the normal control. Histopathological observations have also revealed severe damage in the structure of liver tissue in animals administered with highly active antiretroviral therapy. Treatment of highly active antiretroviral therapy exposed animals with *Nigella sativa* showed marked improvement in both biochemical and histopathological findings. Rise in liver enzymes was almost restored to normal in animals treated with *Nigella sativa*.

**Conclusion:** *Nigella sativa* through its antioxidant activity effectively protects highly active antiretroviral therapy induced liver toxicity.

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