**Abstract**

Fluoroquinolones are some of the most common antibiotics used by clinicians all over the world. Levofloxacin, a fluoroquinolone, is used therapeutically in numerous countries; however, it can cause an increase in liver function tests and liver dysfunction. The current study was designed to determine the effect of Levofloxacin (40 mg/kg body weight (b.wt.) daily for 2 weeks) on rat liver function and oxidative stress markers as well as to evaluate the potential hepatoprotective effects of Moringa oleifera leaf extract as a known antioxidant herb. M. oleifera leaf extract was found to improve the hepatic dysfunction induced by Levofloxacin by recovering liver enzymatic activities (alanine aminotransferase [ALT], aspartate aminotransferase [AST] and gamma-glutamyl transferase [GGT]) to normal levels. The extract also reversed the antioxidant imbalance as measured by catalase and superoxide dismutase activities as well as by reduced glutathione and malondialdehyde levels. Moreover, M. oleifera leaf extract induced anti-inflammation by improving the production of interleukin (IL)-10. Additionally, its presence attenuated the downregulation of IL-1 induced by Levofloxacin alone from hepatic tissue. It can be concluded that M. oleifera extract can help reduce the side effects caused by Levofloxacin administration.

**KEYWORDS:**

; antioxidants; hepatic enzymes; levofloxacin