ABSTRACT

Cholestasis, a hepatic disease, is characterized by the disruption in bile flow from hepatocytes to intestine. This results in piling up of bile acids in the liver and leads to oxidative stress, inflammation, apoptosis and fibrosis of hepatocytes. Current study is designed to evaluate anti-cholestatic potential of Silymarin in alpha naphthylisothiocyanate (ANIT) induced cholestatic mice models. The animals were randomly divided into four groups. One group of mice were administrated with Silymarin at the concentration of 300 mg/kg for 3 weeks. Other groups include the control group, ANIT treated group and UDCA treated group. Then all these groups were administrated with ANIT at the concentration of 75 mg/kg (except control group which received only vehicle), 48 hours prior to dissection. Liver and blood samples were collected after dissection. Serum levels of bilirubin, AST and ALP were determined. Liver sample was also subjected to RNA isolation by Trizol method followed by the cDNA synthesis and Real Time PCR. The results showed that levels of bilirubin, AST and ALP were significantly elevated in ANIT group as compared to control group. However, the Silymarin treated group showed that levels of these parameters were comparable to the control group indicating that Silymarin protects the mice from cholestatic effects of ANIT. These results were also confirmed by histological studies showing that liver cell integrity was distorted in ANIT treated mice. However, the hepatocytes were normal in plant treated mice. Furthermore, the qPCR results showed that the expression of Farnesoid X receptor (FXR), transcriptional regulator of the bile salt export pump (BSEP) and sodium taurocholate cotransporting polypeptide (NTCP), is reduced in ANIT group, which ultimately reduces the level of BSEP and NTCP. However, in Silymarin treated group the expression of FXR as well as BSEP and NTCP were significantly higher than ANIT group. In conclusion, our data showed that Silymarin possess hepatoprotective activity against ANIT induced cholestasis.