BIOASSAY GUIDED HEPATOPROTECTIVE ACTIVITY OF *POLYGONATUM CIRRHIFOLIUM* AGAINST ISONIAZID AND RIFAMPICIN INDUCED HEPATOTOXICITY IN RATS

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ABSTRACT

The present investigation was performed to examine the hepatoprotective effect of the aqueous ethanolic extract of *Polygonatum cirrhifolium* in antitubercular drug-induced liver damage. *P. cirrhifolium* rhizomes were crushed, dissolved in various solvents (in order of polarity), and then tested for phytochemicals. Based on their findings, mass extraction utilizing the ethanol-water mixture (50: 50) was carried out using the Soxhlet method. The doses for animal research were established through acute toxicity tests. The hepatoprotective potential of aqueous ethanolic extract (50:50) of rhizomes was determined in Wistar rats at doses of 200 mg kg^{-1} and 400 mg kg^{-1} p.o. per day. Blood samples were examined for the biochemical markers SGOT, SGPT, ALP, total bilirubin, and albumin. Histopathology of the liver was also conducted followed by *in vitro* anti-oxidant studies. Simultaneously, the extract was subjected to LCMS characterization. *P. cirrhifolium* extract at both the doses 200 mg kg^{-1} and 400 mg kg^{-1} has shown significant hepatoprotective activity against hepatotoxicity induced by INH+ RIF in a dose-dependent manner, as depicted by the significant changes in the values of blood biomarkers and *in vitro* anti-oxidant studies. Histopathological studies showed that the treatment with 200 mg kg^{-1} and 400 mg kg^{-1} of *P. cirrhifolium* exhibited regeneration of liver architecture and portal system by reducing the haemorrhage and inflammatory infiltrate. LC-MS characterization showed serpentine, 5-hydroxy methylfurfural and cephalotaxine as active constituents. It can be inferred that hydroethanolic extract of *P. cirrhifolium* protects the liver from anti-TB induced toxicity and this protection could be due to the active phytoconstituents.