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Biochemical Characterization and *In Vitro* Detection of Promising Hepatoprotective Effects of *P. viviparum* through Liver Slice Culture Assay

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Abstract

Medicinal plants have been used from ancient times as therapeutic agents and these are precious for improving our health care system. That's why in this study persuasive beneficial effects of *P. viviparum* were explored. *P. viviparum* belongs to class Polygonaceae, its common name is Anjbar. Its methanol extracts were used for biochemical characterization through LC-MS and then hepatoprotective effects at different concentrations were studied through measuring lactate dehydrogenase in terms of percentage cytotoxicity. Moreover its antioxidant, hemolytic and anti-thrombolytic activities were also measured. The impressive results of *P. viviparum* were observed. In LC-MS Caffeic acid, natural iridoid sweroside and glycoside Morroniside at 180.08, 381.25 and 428.25 m/z were identified with positive mode of ESI. Likewise with negative ESI presence of Gallic acid, Quinic acid and Chlorogenic acid were observed at 169.08, 191.08 and 353.25 m/z respectively. In liver slice culture assay results, at 1000 µg/mL *P. viviparum* exhibited maximum hepatoprotective potential in terms of minimum 9% cytotoxicity. In antioxidants activities at 500 µg/mL maximum potential of DPPH redical scavanging activity and FRAP were detected**.** Moreover maximum anti-thrombolytic in terms of clot lysis and hemolytic activity were also seen at 500 µg/mL. The present *In vitro* findings of *P. viviparum* showed that it could be used as a hepatoprotective agent to overcome the liver diseases and oxidative stress due to the presence of marvelous active constituents.

Key words: *Lactate dehydrogenase, percentage cytotoxicity, oxidative stress, LC-MS, anti-thrombolytic*