KSN 2020
FULLY VIRTUAL MEETING

Abstract Type : Poster
Abstract Submission No. : PO-1229

Nephroprotective activity of gossypetin through inhibitory effect on xanthine oxidase and soluble epoxide hydrolase (sEH): In-vitro and In-silico experiments

Kanika Patel, Dinesh Kumar Patel
Department of Department of Pharmaceutical Science, Sam Higginbottom University of Agriculture, Technology and Sciences, Payagraj, India, India

Objectives: Oxidative stress and inflammation is the major contributor of kidney injury and the drugs which have antioxidant and anti-inflammatory activity could protect kidney against renal damage. Mechanisms involved in renal failure include oxidative stress, inflammation and apoptosis which lead myoglobinemia, myoglobinuria and cast formation. Inflammatory mediators such as IL-1, ICAM-1 and TNFα also play important role in renal failure. Excess production of uric acid can cause serious consequence in hyperuricemia and xanthine oxidase (XO) catalyzes the oxidation of xanthine to uric acid. Protective effects of gossypetin in the management of kidney injury and related disorders have been investigated in the present work through inhibitory potential of gossypetin on soluble epoxide hydrolase (sEH) and xanthine oxidase.

Methods: Present work described the medicinal importance of gossypetin with their beneficial effect on kidney disorder. *In-silico* molecular docking and dynamic experiments were carried out with gossypetin against soluble epoxide hydrolase (sEH) and xanthine oxidase. Further docking was also performed to investigate how gossypetin and the active site of xanthine oxidase fit together**.**

Results: From the analysis of the available data's in the present work, it was found that gossypetin have protective effect against nephrotoxicity. Gossypetin also showed potent anti-inflammatory activity in kidney mesangial cells which further support application of natural compounds on nephritis treatment. Importance of gossypetin for preventing renal damage has been also emphasized due to its antioxidants potential. *In-silico* studies showed that, gossypetin exhibited a higher docking score against xanthine oxidase and sEH. Docking studies revealed gossypetin surrounds the active sites of xanthine oxidase and reduces conversion of xanthine to uric acid.

Conclusions: The protective effect of gossypetin in kidney could be due to inhibition of sEH and xanthine oxidase.