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Beneficial effects of phloretin on oxidative and inflammatory reaction in rat model of cecal ligation and puncture induced sepsis

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**Introduction**: Sepsis is a debilitating systemic disease and described as a severe and irregular systemic inflammatory reaction syndrome (SIRS) against infection. We employed CLP (Cecal Ligation and Puncture) model in rats to investigate anti-inflammatory and antioxidant effects of phloretin, as a natural antioxidant agent, and its protective effect on liver tissue damage caused by sepsis.

**Methods**: Male Wistar albino rats were randomly divided into 3 groups: Sham group, CLP induced sepsis group and phloretin treated CLP group. Sepsis was induced by CLP method. 50 mmol/kg phloretin was administered intraperitoneally in 2 equal doses immediately after surgery.

**Results**: It was observed that blood urea nitrogen (BUN) and tumor necrosis factor alpha (TNF- $\alpha$ ) levels were dramatically increased in the CLP induced sepsis group (43.88±1.905 mg/dl, 37.63±1.92, respectively) when compared to the sham group. Moreover, tissue glutathione (GSH) and liver nuclear factor  $\kappa$ B (NF- $\kappa$ B p65) transcription factor values were higher in CLP induced sepsis group. This elevation was considerably reduced in the phloretin treated CLP group. No significant differences were observed in serum creatinine and creatinine phosphokinase levels.

**Conclusions**: The present study suggested that phloretin, as a natural protective agent, acts against tissue damages introduced following the experimental sepsis induced model, likely caused by free oxygen radicals.

## Biography

Omid Sabzevari has completed his PhD from Surrey University, and Fellowship at Toronto University Faculty of Pharmacy. He is President of Iranian Society of Toxicology (IranTox) and President of Iranian Association of Pharmaceutical Scientists (IranAPS). He is Head of Basic and Clinical Toxicology Research Centre, TUMS. He is a Scientist in the fields of Mechanistic Toxicology & Pharmacology and Food Safety and has published more than 50 papers in reputed journals, and has been serving as an Editorial Board Member of repute. He was listed among Top 1% Scientists of the World according to ESI/ISI in May 2012.

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