

## Development and Characterization of Soya Phosphatidylcholine Complex of Coumestans from *Eclipta alba* for the Management of Hepatotoxicity

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**Abstract :** The plant *Eclipta alba* Hassk. (Family: Compositae) contains coumestans (wedelolactone and demethyl wedelolactone) used in liver disorders. The objective of the present investigation was to develop a formulation of these coumestans in combination with the soya phosphatidylcholine (PC), in order to overcome the limitation of absorption and to investigate the protective effect of coumestans-phosphatidylcholine complex (C-PC) on carbon tetrachloride induced acute liver damage in rats. Methanolic extract (ME) of the whole plant of *Eclipta alba* was fractionated with water and then with ethylacetate. Coumestans were characterized in the ethylacetate fraction of methanolic extract (EFME). The C-PC was prepared by dissolving EFME and PC in 1:1 ratio in dichloromethane and heating at 60°C for 2 h. The C-PC was characterized by DSC and FTIR spectroscopy. In vitro drug release from EFME and C-PC through egg membrane was measured using UV-Visible spectrophotometer. The hepatoprotective activity of C-PC (equivalent to 5.35 and 10.7 mg/kg body weight of EFME), ME 250 mg/kg and EFME 5.35 mg/kg was evaluated by measuring various enzymes level. C-PC significantly provided better protection to the liver by restoring the enzyme levels of SGPT, SGOT, ALP and total bilirubin with respect to carbon tetrachloride (CCl<sub>4</sub>) treated group ( $P < 0.001$ ). Histopathological studies were also performed. The C-PC provided better protection to rat liver than ME and EFME at similar doses as well as shown significant regeneration of hepatocytes, central vein, intact cytoplasm, and nucleus.

**Keywords :** hepatotoxicity, wedelolactone, soya phosphatidylcholine, *eclipta alba*

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