SUMMARY AND CONCLUSION

The present study was carried out to investigate *Scoparia dulcis* Linn plant for photochemical and also to evaluate same for Hepatoprotective, Antioxidant and Nephroprotective properties. The plant *Scoparia dulcis* Linn was collected from Western ghats of Dhandeli taluk of Karwar district in Karnataka, and was authenticated by renowned botanist. Authenticated plant was evaluated morphologically. Shade dried powder of plant was subjected to successive solvent extraction with different solvent in increasing order of polarity as pet ether, benzene, chloroform, ethyl acetate, alcohol and water. These extracts were subjected to qualitative chemical tests to know the nature phytoconstituents present. TLC and spectral analysis was done to confirm the presence of phytoconstituents.

Animal ethical committee clearance was taken from Head, Department of Pharmacology. Bundelkhand University, Jhansi, for conducting the animal experiments.

The present section summarizes the Hepatoprotective, and Nephroprotective properties of *Scoparia dulcis* Linn. extracts on alcohol or CCl₄ induced hepatotoxic and gentamycin induced nephrotoxic model in experimental animals. The antioxidant activity of *Scoparia dulcis* Linn extracts were also assessed by both in vitro and in vivo model

In this study, both alcohol and CCl₄ treated groups developed a significant hepatic damage and oxidative stress. This indicates that cellular leakage and loss of functional integrity of the cell membrane in liver. The extracts *Scoparia dulcis* Linn. were significantly reduced the elevated levels of biomarkers like SGOT, SGPT, ALP, Total and Direct bilirubin in both the models. The present results suggest that, the hepatoprotective activity of *Scoparia dulcis* Linn. mediates through the stabilization of plasma membrane, repair of hepatic tissue damage, biochemical marker levels return to normal and regeneration of hepatocytes.

Histopathological observations have shown that there is an improvement in the architecture of the liver due to the treatment with extracts of *Scoparia dulcis* Linn in both the models of liver damage.

The extracts of *Scoparia dulcis* Linn were significantly increased the depleted levels of SOD, CAT and reduced the lipid peroxidation levels. These observations demonstrate that free radical scavenging properties. The percentage inhibition of
DPPH and nitric oxide levels by the extracts of *Scoparia dulcis* Linn confirms the antioxidant activity. Thus, the hepatoprotective activity of *Scoparia dulcis* Linn extracts may also involve its antioxidant effect apart from its effects on other defensive factors.

In gentamycin treated group developed a significant renal damage. The elevated levels urine creatinine, urine albumin, serum creatinine and serum albumin confirms the nephrotoxicity. This indicates that loss of functional integrity of the cell membrane in nephrons. The extracts *Scoparia dulcis* Linn. were significantly reduced the elevated levels of biomarkers like urine creatinine, urine albumin, serum creatinine and serum albumin in the model. The present results suggest that, the nephroprotective activity of *Scoparia dulcis* Linn.

Histopathological observations have shown that there is an improvement in the architecture of the nephrons due to the treatment with extracts of *Scoparia dulcis* Linn in the gentamycin treated model.

Thus, it can be concluded that possible mechanism of hepatoprotective and nephroprotective activity of *Scoparia dulcis* Linn. may be due to its antioxidant activity, which may be due to the presence of flavonoids and phenolic compounds in the extract.

Hence, the ethanol and aqueous extract of *Scoparia dulcis* Linn. possess hepatoprotective and also antioxidant activity. Nephroprotective activity was observed in ethyl acetate extract of *Scoparia dulcis* Linn.

Further, studies are needed to confirm for better understanding the mechanism of action on *Scoparia dulcis* Linn. for hepatoprotective and nephroprotective activity.