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Protective Effect of Eichhornia Crassipes Against Cerebral Ischemia Reperfusion Injury in Normal and Diabetic rats

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Abstract:
Eichhornia crassipes (EC) is well reported to modify inflammatory response, oxidative stress which are key pathophysiological finding of cerebral reperfusion injury, alongside it is reported to reduce cholesterol and blood glucose levels, and therefore present work was designed to investigate the effect of EC on cerebral reperfusion injury in normal and diabetic rats. Each protocol comprised cerebral ischemia (CI) for 30 min followed by reperfusion(R) for 1 h. Animals were treated with EC (100 mg/kg p.o) for seven days. At the end of the experiment, brain tissue was utilized for the measurement of oxidative stress markers, inflammatory response, infarct size and histopathological findings. EC treated rats demonstrated a significant reduction in infarct sizes when compared with CI/R and Diabetic CI/R (DCI/R) group of rats. EC treatment demonstrated a significant decreased in malondialdehyde, nitric oxide and blood glucose levels and a significant increase in the level of reduced glutathione, superoxide dismutase catalase and insulin levels, showed modification in oxidative stress. EC treatment confirmed a significant decrease in myeloperoxidase, C - reactive protein and TNF-α levels indicated a change in the inflammatory response. Histopathological findings revealed a reversal of damage in EC treated rats. EC treatmen reduced DNA fragmentation of brain tissue in treated animals. EC was found to be cerebroprotective against CI/R along with DCI/R group of rats by anti-inflammatory and antioxidant activities.

Key Words : Cerebral, Eichhornia, Injury, Ischemia, Protective, Reperfusion

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