**ABSTRACT**

**Aim:** To investigate cerebroprotective action of Hesperetin against cerebral ischemiareperfusion induced cerebral infarction in both normal and streptozotocin-induced

diabetic Rats.

**Methods:** In the present study, male wistar albino rats weighing 150-250 gm were used. Rats were anesthetized by giving thiopentone sodium (45 mg/kg) by i.p. earlier published method was adopted for inducing cerebral ischemia. Ischemic condition was achieved by BCCAO method for 30 min ischemic, followed by 48 h reperfusion. The allopurinol (10 mg/kg) (XO inhibitor), L-NAME (10 mg/kg) (NO inhibitor) and nimesulide (20 mg/kg) (COX inhibitor) were administered 10 min before ischemia and hesperetin (30 mg/kg) was administered 10 min before reperfusion period. Then after 48 h reperfusion, animals were sacrificed and immediately brain was removed, homogenized, centrifuged and supernatant was collected, then various enzyme estimations were done and same procedure was followed in STZ (45 mg/kg; i.p.) induced diabetic rats.

.

**Results:** In I/R group showed significant increase in malondialdehyde, myeloperoxidase and depletion in catalase and superoxide dismutase levels was observed. Combined treatment of hesperetin with allopurinol significantly decreased the MDA and MPO levels where as increased the SOD and CAT levels when compared I/R group in both non-diabetic and diabetic rats. Rare, cerebroprotection was offered by hesperetin when given along with nimesulide. Where as, Hesperetin failed to show synergestic activity with L-NAME.

**Conclusion:** These findings suggest the cerebral injury due to over production of free radicals was inhibited by combined treatment of hesperetin and allopurinol by limiting the XO pathway that suggests antioxidant property.

**Keywords:** Reperfusion cerebral ischemia, Hesperetin, L-NAME, Allopurinol,

Nimesulide, Oxidative stress.