

## **ABSTRACT**

**Objective:** To investigate the adaptogenic activity of ethanolic extract of fruits of *Terminalia chebula* Retz (combretaceae) an Indian Ayurvedic medicinal plant at various doses using experimentally induced stress models in mice and rats. Methods: Swimming endurance, anoxia stress tolerance, cold and immobilization stress models were used for the evaluation of adaptogenic activity. *Withania somnifera* (100 mg/kg, p.o.) used as reference standard and it showed significant adaptogenic activity in all four models of stress. The parameters like swimming endurance time, anoxia stress tolerance time was measured for swimming endurance and anoxia induced stress tolerance models respectively. However for other two models biochemical marker levels as well as blood cell count were estimated and organ weights were measured in negative control, positive (stress) control, and drug treated groups.

**Results:** Concomitant treatment with ethanolic extract at dose of 200 and 500 mg/kg, p.o. showed marked increase in swimming endurance and anoxia stress tolerance time as compared to control group in swimming endurance and anoxia stress tolerance test respectively. Similarly, concomitant treatment with ethanolic extract showed marked decrease in stress induced elevated levels of serum glucose, cholesterol, triglyceride, BUN and blood cell count (RBC, WBC) as compared to positive control group in both cold and immobilization stress models. Extract also prevented the variation in weight of organs like liver, spleen, testis and adrenal gland when compared to positive control animals in both the stress models.

**Conclusion:** The present study suggests that ethanolic extract of *Terminalia chebula* possess a significant adaptogenic property and its incorporation in the Geriforte an Ayurvedic rasayana is justifiable.

**Key words:** *Terminalia chebula*; fruits extract; stress; adaptogenic activity; Swimming endurance test; anoxia stress tolerance test; cold resistant stress; immobilization stress.