**ABSTRACT**

Terminalia bellirica, one of the oldest medicinal herbs of India, is an ingredient of Indian Ayurvedic formulation ‘triphala’ used for the treatment of digestive and respiratory disorders. Present study is aimed to evaluate the Immunomodulatory and anticancer activity of ethanolic extract of T. bellirica in mice. Immunomodulatory activity of ethanolic extract of T. bellirica (150 and 350 mg/kg, p.o.) was carried out by testing phagocytic index, cyclophosphamide induced neutropenia, relative organ weight and delayed type hypersensitivity (DTH) reaction. Pretreatment with ethanolic extract of T. bellirica (350 mg/kg, p.o.) showed significant (p<0.01) increase in Phagocytic index and significant (p<0.05) protection against cyclophosphamide induced neutropenia. Moreover, significant (p<0.01)increase in relative weight of spleen at 350 mg/kg was observed but there was no remarkable change in thymus index was observed in tested doses of plant extract. Furthermore, both the doses of ethanolic extract of T. bellirica showed significantly (p<0.01) potentiated the DTH reaction by facilitating the footpad thickness response to SRBC’s in sensitized mice. So, the study demonstrated that T. bellirica triggers both non-specific and specific cellular immunity. The anticancer activity of ethanolic extract of T. bellirica was evaluated against the Ehrlich ascites carcinoma (EAC) tumor model. Tumor was induced by intraperitoneal injection of EAC cells (1×106 cells/mouse). Oral administration of ethanolic extract of T. bellirica (150 and 350 mg/kg, p.o.) resulted significant (p<0.01) increase in the survival time and the normal peritoneal cell count. Hematological parameters, which were altered by tumor inoculation, were reversed. The solid tumor mass was also significantly (p<0.05) reduced. The findings of this study indicated that both the doses of *T. bellirica* possess significant anticancer potential.

**Keywords:** Immunomodulatory, delayed type hypersensitivity reaction, anticancer,

Ehrlich ascites carcinoma, survival time, *Terminalia bellirica*.