

## Abstract

*Terminalia brownii* is widely used in folklore medicine and has diverse biological activities. However, its effect on the immune system is yet to be studied. Therefore, our study evaluated the immunomodulatory effect of *T. brownii* on nonspecific immunity. Innate immunity is the initial defence phase against pathogens or injuries. Dichloromethane plant extracts were tested on female Swiss albino mice and Wistar rats. The effect of the extract on innate immunity was assessed via total and differential leukocyte counts, tumor necrosis factor- $\alpha$ , and nitric oxide production by mouse macrophages. The 3-(4, 5-dimethyl thiazolyl-2)-2, 5- diphenyltetrazolium bromide assay was employed for viability testing. Phytochemical profiling was carried out using gas chromatography-mass spectrometry, while toxicity studies were carried out following the Organization for Economic Cooperation and Development guidelines. Our results demonstrated that administration of *T. brownii* stem bark dichloromethane extract to pyrogallol-immunocompromised mice significantly ( $p < 0.05$ ) increased total and differential leukocyte counts compared with the control. The extract showed no adverse effect on the viability of Vero cells and macrophages and significantly ( $p < 0.05$ ) augmented tumor necrosis factor- $\alpha$  and nitric oxide production. Hexadecanoic acid, linoleic acid, octadecanoic acid, squalene, campesterol, stigmasterol, and  $\beta$ -sitosterol, all of which stimulate, were identified in the extract. The extract did not cause any death or toxic signs in rats. In conclusion, *T. brownii* dichloromethane extract has an immunoenhancing effect on innate immune responses and is not toxic. The observed immunoenhancing impact of the extract was attributed to the presence of the identified compounds. The results of this study provide crucial ethnopharmacological leads towards the development of novel immunomodulators for managing immune-related disorders.