ABSTRACT

The roots of *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* was collected from the forest near to Vishakapatnam District (Andhra Pradesh) and authenticated by Dr. Madhava Chetty, Taxonomist, Department of Botany, Sri Venkateswara University, Tirupati, Andhra Pradesh, India. The collected fresh roots were properly cleaned and shade dried at room temperature and was converted into small pieces and finally powdered.

Powdered plants were extracted with methanolic and n-Hexane using Soxhlet apparatus. The *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* subjected to preliminary phytochemical investigations and was found to possess alkaloids, glycosides, carbohydrates, flavonoids, phytosterols/terpenes, proteins, tannins, saponins and lipids. Roots of *Terminalia pallida* and *Boswellia ovalifoliolata* gave isolated compounds TP-01 and BO-01 respectively. The isolated compounds were characterized using physical properties, chemical tests, Rf value and spectral data especially IR, Mass and NMR. On that basis the structure of TP-01 was established as β-sitosterol-3-O-β-D-glucopyranoside (also known as Daucosterol, beta-Sitosterol glucoside, O-glucosyl-beta-sitosterol) and BO-01 was established as 5,7-dihydroxy-2-(4-hydroxyphenyl)-4H-chromen-4-one-8-glucoside.(Vitexin).

The root extracts of *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* are having anti- microbial, in-vitro antioxidant, analgesic, anti-
inflammatory and hepatoprotective effect and also antioxidant activity in D-GalN/LPS and ethanol induced hepatotoxic models.

The Methanol (ME) and n-Hexane (HE) extracts of *Terminalia pallida* Brandis (TP) and *Boswellia ovalifoliolata* (BO) shows significant zone of inhibition against bacteria and fungi. Methanolic extract had produced good antibacterial activity against gram +ve and gram –ve bacteria and fungal strains when compared to n-Hexane extract.

The pure compounds (TP-1 and BO-1) were tested for minimum inhibitory concentration and all the tested compounds have shown significant activity.

Anti-inflammatory activity screened was acute and chronic models of inflammation. For the acute and chronic inflammatory property, the formalin induced paw oedema in rats technique was employed. The outcome of study showed that methanolic and n-Hexane extracts of *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* has showed significantly acute anti-inflammatory activity. It furthermore showed significantly chronic anti-inflammatory activity.

In this study the METP, HETP, MEBO and HEBO extracts of *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* is evaluated for its analgesic activity of acetic acid induced writhing in mice. The METP, HETP, MEBO and HEBO extracts produced significantly analgesic activity.

METP, HETP, MEBO and HEBO demonstrated the dose dependent antioxidant activity. The METP, HETP, MEBO and HEBO found to possess reducing power and hydroxyl ion scavenging activity activities and prevented
the increased in depleted tissue CAT and SOD levels. Therefore, for further studies METP, HETP, MEBO and HEBO is selected for organ protective (hepatoprotective), activity.

Treatment with METP, HETP, MEBO and HEBO has protected liver from DGal/LPS and etanol induced hepatotoxicity. This was demonstrated by reducing the elevated levels of biochemical markers like SGPT, SGOT, ALP, total protein, total and direct bilirubin, triglycerides (TG), total cholesterol (TC), HDL-Cholesterol (HDL-C), LDL-Cholesterol (HDL-C), VLDL-Cholesterol (VLDL-C). In addition histopathological observations have shown that there is an improvement in the architecture of liver due to treatment with has DGal/LPS induced hepatotoxic models.

Hence, it may be concluded that the *Terminalia pallida* Brandis and *Boswellia ovalifoliolata* possess antioxidant and hepatoprotective properties and these activities may attributed to the presence of active principles in *Terminalia pallida* Brandis and *Boswellia ovalifoliolata*. 