Analgesic potential of dichloromethane leaf extracts of Eucalyptus globulus (Labill) and Senna didymobotrya (Fresenius) in mice models

Introduction:

Pain is managed using conventional drugs like paracetamol, aspirin and diclofenac among others. Synthetic drugs have many side effects. This study aimed at evaluating the analgesic potential of the dichloromethane leaf extracts of Eucalyptus globulus and Senna didymobotrya in mice.

Methods:

The dichloromethane leaf extracts of E. globulus and S. didymobotrya were subjected to quantitative phytochemical analysis using gas chromatography-mass spectrophotometry (GC-MS). In vivo analgesic evaluation comprised of nine groups of animals (Swiss albino mice): normal, positive, negative control and six experimental groups that received 25, 50, 100, 150, 200 and 250 mg/kg body weight of each plant extract intraperitoneally. Thirty minutes later, they were injected with 0.01 mL of 2.5% formalin. The animals in positive control group were administered diclofenac (15 mg/kg) and formalin, the normal control mice received 3% dimethyl sulfoxide (DMSO) in normal saline, while the negative group received DMSO in normal saline and formalin. All the doses were administered intraperitoneally. The duration of shaking and licking of the injected paw was scored and analyzed.

Results:

The analysis revealed that E. globulus contained alpha-pinenes, endo-fenchol, α-eudesmol, myrcene, camphene, alpha-phellandrene, limonene, and camphor while S. dymobotrya possessed camphene, alpha-phellandrene, limonene, and camphor. In the late phase, E. globulus at the doses of 25, 50, 100, 150, 200 and 250 mg/kg reduced the paw licking time by 34.03%, 60.79%, 84.33 %, 90.65%, 94.49%, 98.52%, respectively while S. didymobotrya extract reduced the paw licking time by 26.48%, 32.96%, 87.04%, 91.27%, 93.40%, 90.97%, and 96.82%, respectively.

Conclusion:

The results of this study validate and support the traditional uses of these plants as analgesics.