

JCSH-028

In-Vitro Study on GABA Transaminase Inhibiting Activity of Heartwood, Lemon Balm, Peppermint Leaves

Bethlian L. Bulang, Phoebe Pauline U. Corda, Mary Claire J. Dan, Ferlien Mae Brieta*, and Jayson Canja

University of the Immaculate Conception

*Correspondence

College of Pharmacy and Chemistry, University of Immaculate Conception, Fr. Selga St., Bankerohan, Davao City 8000

E: fbaula@uic.edu.ph

Keywords

pharmacy, *sibukaw*, lemon balm, peppermint, GABA-T, IC50, experimental, ELISA

Abstract

Treatments for epilepsy are still insufficient and limited. Drug therapies show serious adverse effects that may harm patients. Herbal traditional approaches have been advancing for neurological diseases due to their effects and tolerability. The research design is experimental. The variables were subjected to an ELISA; three treatments were in three replicates with Valproic acid as the positive control. ANOVA was used to compare the differences in anticonvulsant effects, and regression analysis was used to show the causal effect of the concentration. The ethanol extracts of *C Caesalpinia sappan* (*sibukaw*) heartwood, *Melissa officinalis* (lemon balm), and *Mentha piperita* L. (peppermint) leaves exhibited inhibition on GABA-T at 117.30, 153.70, and 105.00 µg/mL, respectively. The ethyl acetate concentration extracts of heartwood, lemon balm, and peppermint leaves showed inhibition on GABA-T at 175.20, 171.40, and 122.40 µg/mL, respectively. There is a significant difference between the EtOH and EtAc extracts of the plant samples and Valproic acid, with Valproic acid exhibiting an IC50 of 1.62 µg/mL, showing the highest inhibitory activity on GABA transaminase. The researchers recommend isolating the specific bioactive compounds identified to optimize the GABA-T inhibitory effect to fully assess its mechanism as an anti-epileptic agent. After isolating the specific bioactive compounds, it is best to identify their specific Quantitative Structure-Activity Relationship (QSAR) model and perform a comparative analysis of their inhibitory activity on GABA-T against the positive control, Valproic acid. Furthermore, establish the safety levels of the bioactive compounds by conducting an in vivo investigation on the inhibitory activity of the isolated bioactive compounds of the *sibukaw*, lemon balm, and peppermint.