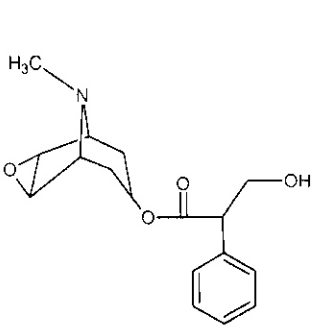
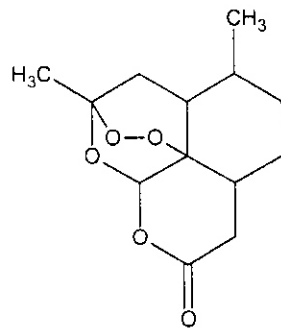


SUMMARY

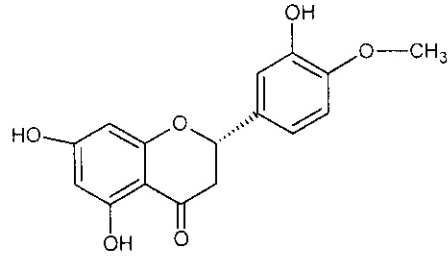
The present study was carried out to identify Acetylcholine esterase (AChE) inhibitors from medicinal plants. Preliminary screening of *Datura innoxia*, *Citrus sinensis*, *Acacia catechu*, *Melia azedarach*, *Impatiens bicolor*, *Cinnamomum zeylanicum*, and *Artemisia vulgaris* plant extracts showed promising results in the chloroform extracts of *D. innoxia* (pH 9.0) and *A. vulgaris*, ethyl acetate extract of *A. catechu*, *I. bicolor* & *C. zeylanicum* and Methanol extracts of *C. sinensis*, *A. catechu*, *M. azedarach*. Bioassay guided fractionation of the active extracts yielded ten different compounds. Scopolamine (1) isolated from *D. innoxia* chloroform pH 9.0 extract. The enzyme kinetic study of compound (1) showed mixed type of inhibition. Compound (1) showed 69.5 ± 0.53 % AChE inhibition at 250 $\mu\text{g/mL}$. Hesperetin (2) and Hesperidin (3) purified from methanol extract of *C. sinensis* showed 35.16 ± 0.11 and 59.7 ± 0.26 % AChE inhibition potential respectively at a concentration of 250 $\mu\text{g/mL}$. Enzyme kinetics study of compound 3 indicated mixed type of inhibition. catechin (4) and gallic acid (5) were isolated from the ethyl acetate extract while tannic acid (6) from methanol extract of *A. catechu*. Catechin (4) showed mild (8.5 ± 0.24 %) AChE inhibition tendency while, gallic acid (5) and tannic acid (6) exhibited ($36.08 \pm 0.21\%$ and $43.2 \pm 0.58\%$) moderate AChE inhibition potential at 250 $\mu\text{g/mL}$. The enzyme kinetic studies of compound 5 and 6 showed uncompetitive and mix type of enzyme inhibition respectively. Vanillin (7) was isolated from methanol extract of *Melia azedarach*. Compound 7 showed $50.4 \pm 0.17\%$ AChE inhibition potential at 250 $\mu\text{g/mL}$, while enzyme kinetic study of the compound exhibited uncompetitive type of inhibition. Ferulic acid (8) isolated from the ethyl acetate extract of *Impatiens bicolor* showed moderate ($44.28 \pm 0.36\%$) AChE inhibition potential. The enzyme kinetic study of the compound 8 showed uncompetitive inhibition. Cinnamic acid (9) was isolated from the ethyl acetate extract of *C. zeylanicum*. Compound 9 showed mild ($19.7 \pm 0.19\%$) AChE inhibition potential. Artemisinin (10) was isolated from the chloroform extract of *Artemisia vulgaris* which showed moderate ($52.3 \pm 0.38\%$) AChE inhibition at a concentration of 250 $\mu\text{g/mL}$. The enzyme kinetic study of compound 10 showed mix type of inhibition.



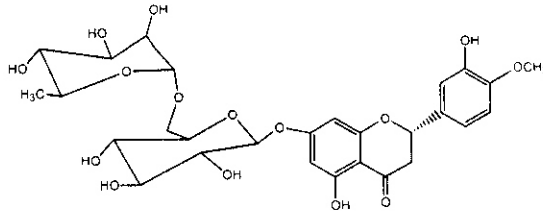
Scopolamine (1)



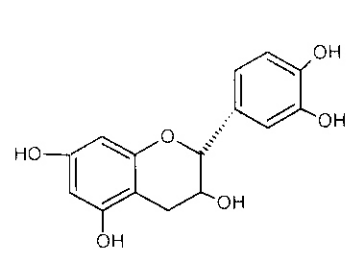
Artemisinin (10)



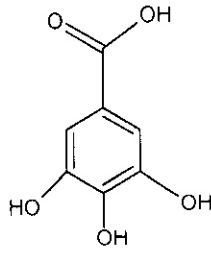
Hesperetin (2)



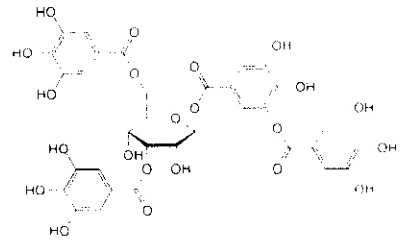
Hesperidin (3)



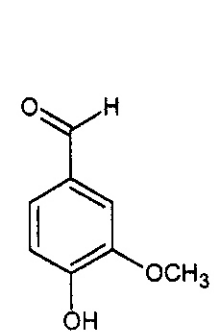
Catechin (4)



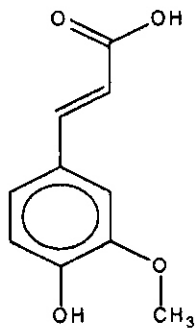
Gallic acid (5)



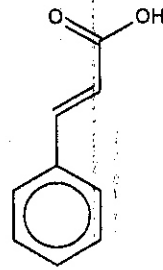
Tannic acid (6)



Vanillin (7)



Ferulic Acid (8)



Cinnamic Acid (9)