

**Figure 2** Theoretical illustration of a hydroxyl radical (OH) scavenged by ARs incorporated in cell membrane([Agil & Hosseinian, 2012a](#))

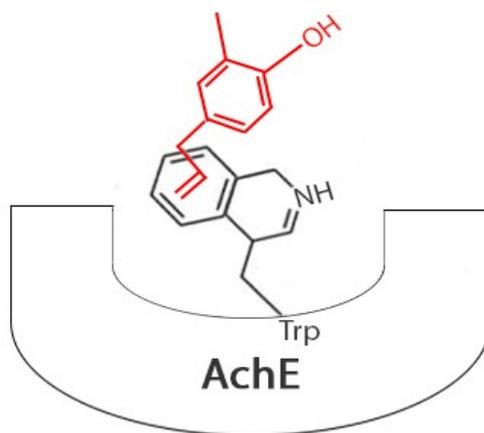
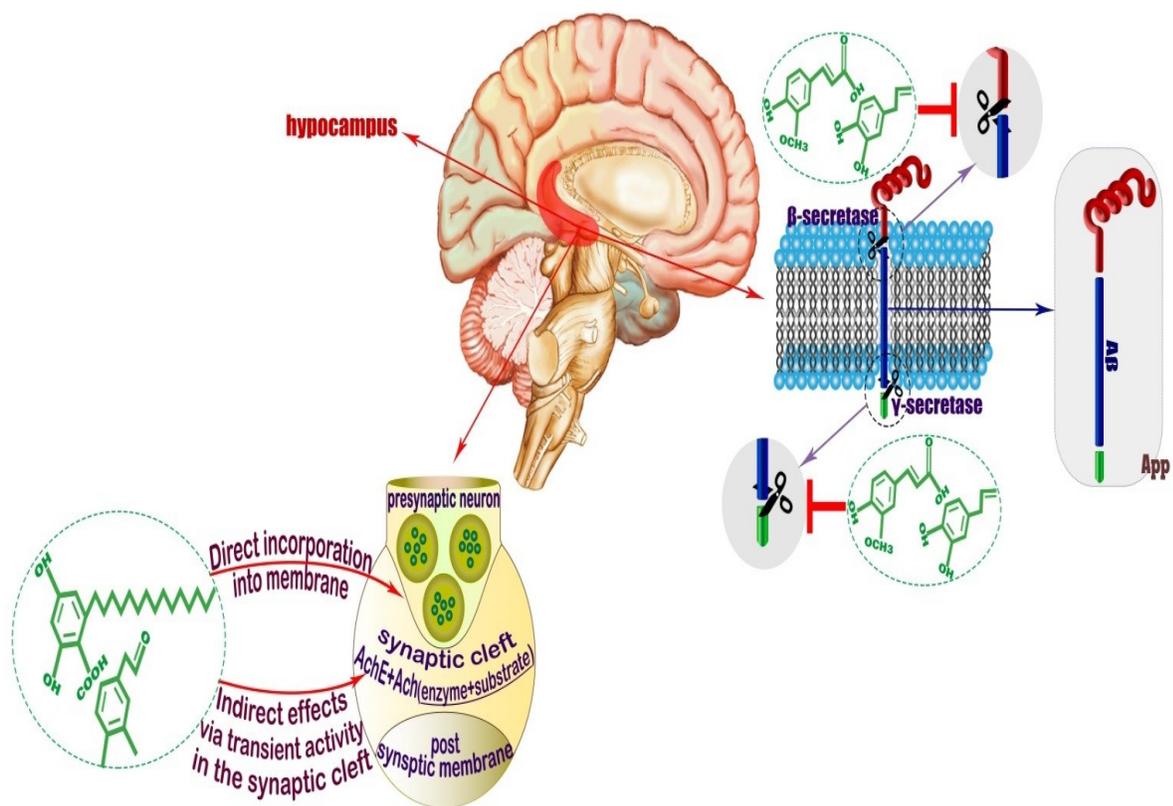


Figure 3 Cation-  $\pi$  interaction between phenolic lipid moiety (Eugenol) and tryptophan residue of acetylcholinesterase (Wille et al., 2010).



**Figure 4** Schematic pathways of Alzheimer's disease that are affected by bioactivity of phenolic lipid. Amyloid plaques are a consequence of  $\beta$  and  $\gamma$  secretase on amyloid precursor protein (APP), then accumulation of the released amyloid beta (AB) pieces. Incorporation of phenolic lipid into the cell membranes is one of the possible inhibitory effects on formation of acetylcholin esterase-Acetyl choline complex ([Meshginfar et al., 2020](#)).