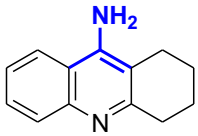
SECTION-III

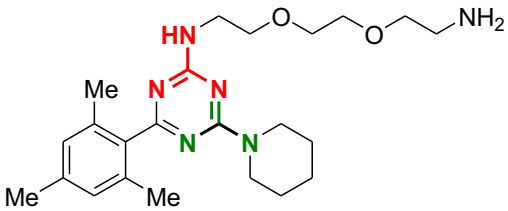
CHAPTER 2.
RESEARCH ENVISAGED

2. RESEARCH ENVISAGED

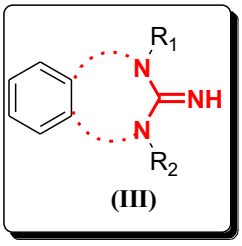
An exhaustive literature survey revealed that small heterocyclic molecules are of great importance for targeting beta-amyloid plaque formation during the progress of AD. According to cholinergic hypothesis small heterocyclic molecules are good enough to maintain the level of acetylcholine in brain. Research into the cholinergic hypothesis has led to the development of several fused and non-fused ring systems as cholinesterase inhibitors (ChEIs). For example, tacrine (**I**), an acridine derivative, was one of the earliest ChEI developed to treat AD. Recently a guanidine based ring temp-



(I)



(II)



(III)

-late (**II**) has been explored for its ability to inhibit the aggregation of $A\beta_{1-42}$ plaques and it has shown dual activity of inhibiting cholinesterase enzymes as well. Keeping in mind the structure of tacrine (tricyclic ring system) and the guanidine base ring system (**II**) it was planned to synthesize a ring system of type **III** and to evaluate the derivatives against beta-amyloid aggregation as well as cholinesterase enzymes.