

## Abstract

A series of fluorine substituted N-Phenethyl-N-phenyl benzamide compounds have been synthesized that involved three steps. These compounds have been characterized to study the importance of C–H $\cdots$ F and other weak interactions in crystal engineering in the absence of strong hydrogen bond. The effect of fluorine substitution on the molecular solid-state organization and conformation in the crystalline lattice has been discussed in terms of changes in supramolecular aggregation. It was observed that these compounds utilizes C–H $\cdots$ F and C–H $\cdots$ O hydrogen bonds in cooperation with C–H $\cdots$  $\pi$  and  $\pi\cdots\pi$  interactions in molecular packing. Further, various synthetic techniques have been employed to synthesize fluorinated isoquinoline compounds to study the importance of fluorine mediated interactions in these compounds. Unfortunately, these compounds were not synthesized.