Abstract

The synthesis of desired compound was carried out under regulated conditions. According to balanced chemical equation, reaction of substituted aniline (**1a, 1b**; one in each reaction) with 4-(chloromethyl) benzoyl chloride (**2**) was done in 10% sodium carbonate solution and the pH maintained at 9-10. The reaction mixture was agitated moderately for half an hour at room temperature. Purity of substance was checked by TLC. To get purified electrophiles, precipitates were washed, collected and dried and *N*-(substituted-phenyl)-4-(chloromethyl) benzamides (**3a,3b**) were formed. *N*-phenylpiperazine (**4**) and dimethylformamide were then taken in a flask, LiH was added, with continuous stirring for half an hour at room temperature. After the activation of *N*-phenylpiperazine (**4**), newly synthesized electrophile (**3a, 3b**) newly synthesized electrophile (3a, 3b) was introduced in the flask, and left the mixture on stirring for almost 16-18 hours at room temperature. TLC was done to check the advancement of the reaction, until single spot was displayed. Then, to get the targeted product, *N*-(substituted-phenyl)-4-[(4-phenyl-piperazinyl) methyl] benzamides (**5a,5b**) as mentioned in **scheme-1**, the reaction was halted with cold water, and their structures were evaluated by using some spectral techniques. The spectroscopic techniques ^{1}H-NMR, ^{13}C-NMR, and biological activity of compounds were performed. DMSO-d_6 used as a solvent, trimethyl silane as standard reference, while performing ^{1}H-NMR, operate the spectrometer at 600 MHz. DMSO-d_6 also used as a solvent in ^{13}C-NMR and 150MHz frequency was used to operate this instrument. Further, to evaluate the therapeutic benefits of the drug, elastase inhibition of compounds was carried out and, in this assay, oleanolic acid was used as elastase inhibitor. Compound (**5a**) exhibited excellent activity against elastase when compared with the standard inhibitor.