
ABSTRACT

In the present research work we have synthesized various *N*-(dimethylphenyl)-2-(4-phenyl-1-piperazinyl)acetamideregio-isomers. The different Dimethyl anilines (**1a-f**) were treated with bromoacetyl bromide to synthesized starting reagent 2-Bromo-*N*-(dimethylphenyl)acetamides (**3a-f**) which was further treated with 1-Phenylpiperazine to synthesized different *N*-(dimethylphenyl)-2-(4-phenyl-1-piperazinyl)acetamideregio-isomers (**5a-f**). All synthesized compounds were structurally characterized by IR, ¹HNMR and ¹³CNMR spectral techniques. The cytotoxic and anticancer activities of all these compounds were also assessed. Different results were obtained to check the hemolytic, cytotoxic and anti-cancer activity of these compounds. .