Synthesis of Novel *N*-Aryl piperazin2-Aryl-4-Quinolone Phosphonates

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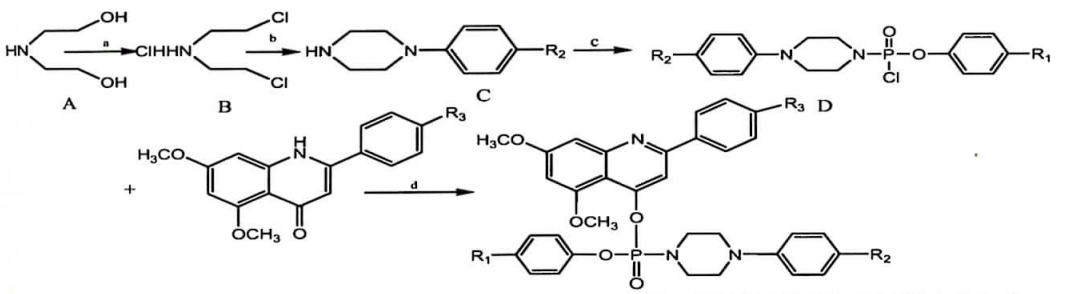
Abstract

Flavonoids have a wide range of physiological activity, including anticytotoxic, antimitotic, antibacterial, antiplatelet, anti-tumor activities. It is reported that replacement of the O1 of flavonoid by nitrogen would allow the attachment of groups that might give rise to beneficial interactions with the biological active site. Also, the presence of a nitrogen would allow the formation of ammonium salts and therefore to enhance the solubility of the synthesized compounds [1]. 2-aryl-4-quinolones and related compounds，as a class of aza flavone analogues and cardiovascular protectors, have been extensively studied in the past ten years.

Piperazine analogues own many bioactivities [2].It is an established fact that esters of phosphoric acid have wide bioactivities and play a vital role in many biological processes. In order to enhance the physicochemical and biological properties of 2-aryl-4-quinolones and phosphoramide piperazine, we synthesized a series of new phosphoramidate derivatives of 2-aryl-4-quinolones (Scheme 1) with hope of increasing tumor selectivity, overcoming tumor resistance and decreasing the toxicity of the compounds. The structures of all the newly synthesized compounds were defined by ESI-MS, NMR and IR.



Rengents and condition:(a)$SOCl_2$,$CHCl_3$;(b)$C_6H_5NH_2$,R_2(R_2:-CH_3,-OCH_3,-CH_2CH_3),K_2CO_3,$CH_3(CH_2)_3OH$,reflux;
(C)R_1-PhO-$POCl_2$(R_1:-H,-CH_3,-OCH_3),CH_2Cl_2,NEt_3;(d)THF,NEt_3,reflux,(R_3:-H,-CH_3,-OCH_3,-Cl,-NO_2)

References

[1] Mohamed H.; Annemarie M.; Ahcene B. *Chem. Pharm. Bull.* 2001, 49, 1352-1355.

[2]David C.Tudor; A Review of Piperazine and Piperazine Compounds as Poultry Ascaracides. *Avian Diseases*, Vol. 6, No. 4 (Nov., 1962), pp. 493-499