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Synthesis of 1-[(O,O-diphenyl phosphonyl)arylmethyleneamino carbonylmethyl]uracils

Xue Jun LIU*, Guo Chen CHI, Ru Yu CHEN

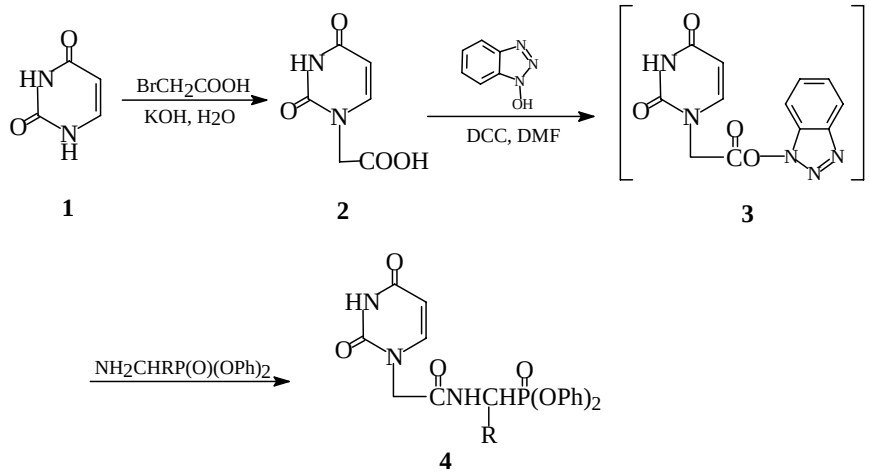
Institute and National Key Laboratory of Elemento-Organic Chemistry, Nankai University
Tianjin 300071

Abstracts: A new series of compounds, 1-[(O,O-diphenyl phosphonyl)arylmethylene aminocarbo-nylmethyl]uracils, were synthesized in yield of 54.6-72.0% with DCC/BtOH as the coupling reagent, and their biological activities are being tested.

Keywords: Uracil, α-aminophosphonic acid.

Recently, the derivatives of N-1 pyrimidines or N-9 purines, substituted by a phosphonyl group were found as a new class of antiviral agents with a broad spectrum of activities against retroviruses and DNA virus[1,2]. And at the same time, α-aminophosphonic acids also exhibit various interesting biological activities. Some of them have been employed as anticancer, antibacterial and antibiotics[3-5]. So we designed and synthesized the title compounds in order to search for new biologically activitive substances. The synthetic route is shown in **Scheme I**.

Scheme I



1 **2** **3**

4

The key intermediate **2** was obtained in 91% yield by adding the aqueous solution of bromoacetic acid to the mixture of potassium hydroxide and uracil in water at 45℃. To the mixture of **2** and 1-hydroxybenzotrizole (BtOH) in DMF at 0℃was dropped slight excess of DCC in DMF resulting in the intermediate **3**, to which (unseparated) was then added a solution of α-aminophosphonate[6] in DMF giving the title compounds **4**. Some of experimental results were listed in the **Table I**. The structures of **4** were characterized by ^{1}HNMR, ^{31}PNMR, elemental analysis and IR[7].

Table I Experimental data of compounds **4**

Compd.	R	State	m.p.(℃)	yield (%)
4a	Ph	White Solid	197-198	69.1
4b	*p*-Cl-Ph	White Solid	204-205	66.5
4c	*p*-Me-Ph	White Solid	196-197	72.0
4d	*o*-MeO-Ph	White Solid	177-178	62.4
4e	*m*-NO_2-Ph	Yellow Solid	168-169	54.6
4f	*p*-NO_2-Ph	Yellow Solid	223-224	55.1

Acknowledgment

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References and notes

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7. Selected spectroscopic data for compound **4d:**
   ^{1}HNMR δ (DMSO): 3.76 (s, 3H), 4.48 (q, 2H), 5.54 (d, 1H), 6.40 (dd, 1H), 6.84～7.60 (m, 15H), 9.50 (d,1H), 11.26 (s, 1H); ^{31}PNMR δ (DMSO): 19.98; EA: Calcd: C (59.89), H (4.64), N (8.06), Found: C (59.93), H (4.59), N (8.26). IR (KBr,cm^{-1}): 3429, 3279, 3052, 2940, 2837, 1682, 1548, 1488, 1382, 1237, 1186, 1025, 953.

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