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Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

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Synthesis and Biological Activity of A-Hydroxyphosphonates

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To cite this Article Zuo, Na and He, Hong-wu(2008) 'Synthesis and Biological Activity of A-Hydroxyphosphonates', Phosphorus, Sulfur, and Silicon and the Related Elements, 183: 2, 621 — 622

To link to this Article: DOI: 10.1080/10426500701793279

URL: <http://dx.doi.org/10.1080/10426500701793279>

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Synthesis and Biological Activity of α -Hydroxyphosphonates

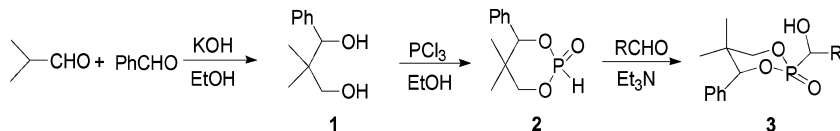
Na Zuo and Hong-wu He

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Ten α -hydroxyphosphates were synthesized and the preliminary bioassay indicated that these compounds exhibited certain herbicidal activities.

Keywords α -hydroxyphosphonates; synthesis; herbicidal activity

Some hydroxyphosphonates and its derivatives have shown good biological and pharmaceutical activities. In continuation of our work, a number of α -hydroxyphosphonates have been synthesized. **1** and **2** was prepared according to the literature procedures. **2** was reacted with various aldehydes by the Pudovik reaction to form the title compounds **3** in good yields (80–90%). Triethylamine was used as catalyst. The best reaction time was 2–3 h and the temperature was 25°C. All 10 compounds were confirmed by ^1H NMR, IR and element analysis, and one was examined by the single crystal X-ray diffraction. The results of preliminary bioassay indicated that the title compounds exhibited certain herbicidal activities. Some α -hydroxyphosphonates and its derivatives have shown good biological and pharmaceutical activities.^{1–3} **1** and **2** was prepared according to the literature procedures.^{4,5}

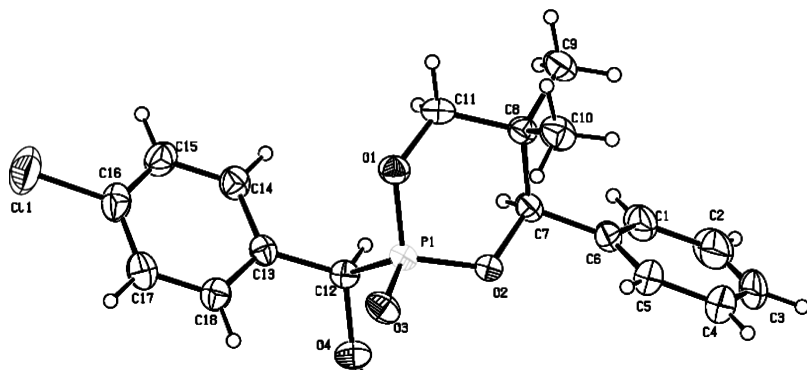


SCHEME 1

Financial support was provided by the National Basic Research Program of China (2003CB114400) and NNSF of China (20372023).

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R=alkyl, Ph, substituted Ph, Furfuryl



SCHEME 2

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