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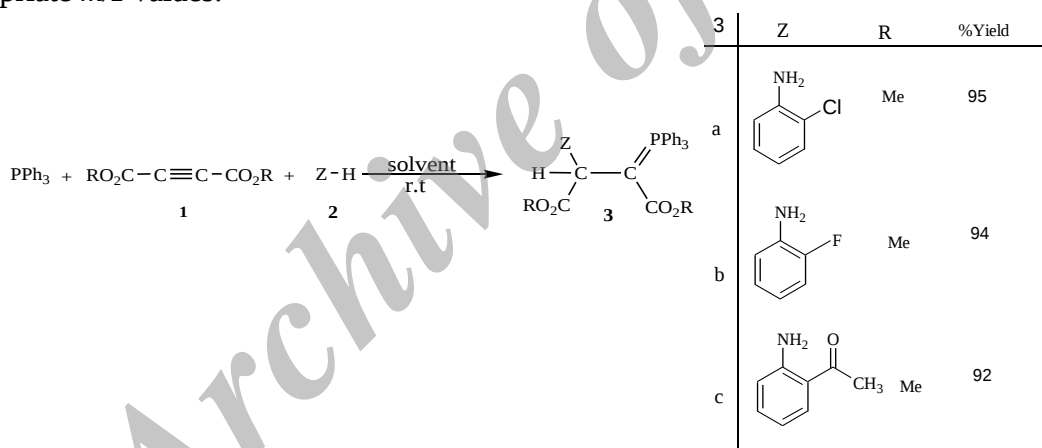
A simple and one-pot synthesis of stable phosphorus ylides from the reaction of NH-containing compounds with dialkyl acetylenedicarboxylates in the presence of triphenylphosphine

Khatereh Khandan Barani^a, *Mehdi Sharaki*^a and *Shirin Elmi*^a

^aDepartment of Chemistry, Islamic Azad University, Zahedan Branch, P.O. Box 98135-978, Zahedan, Iran

E-mail: khatereh_baran@yahoo.com

Stable crystalline phosphorus ylides were obtained in excellent yields from the 1:1:1 addition reaction between triphenylphosphine and dialkyl acetylenedicarboxylates, in the presence of 2-chloroaniline, 2-fluoroaniline and 2-aminoacetophenone. These stable ylides exist in solution as a mixture of two geometrical isomers as a result of restricted rotation around the carbon-carbon partial double bond resulting from the conjugation of the ylide moiety with the adjacent carbonyl group. The synthesis of phosphorus ylides is important in organic chemistry because of their application in the synthesis of organic products [1-4]. Phosphorus ylides are reactive intermediates, which take part in many valuable reactions in organic synthesis. These ylides most often are prepared by treatment of a phosphonium salt with a base and phosphonium salts usually are made from the phosphine and an alkyl halide [5,6]. The structures of compounds **3a-c** were deduced from their IR, ¹H, ¹³C and ³¹P NMR spectrum. The mass spectrum of them displayed molecular ion peaks at appropriate *m/z* values.



References

- [1] I. Yavari, M. T. Maghsoodlou, *Tetrahedron Lett.*, **1998**, 39, 4579.
- [2] I. Yavari, M. R. Islami, H. R. Bijanzade, *Tetrahedron Lett.*, **1999**, 55, 5547.
- [3] M. T. Maghsoodlou, N. Hazeri, M. Nassiri, G. Marandi, A. G. Shahzadeh, H. R. Bijanzade, *Phosphorus, Sulfur, and Silicon.*, **2006**, 181, 1117.
- [4] M. T. Maghsoodlou, S. M. Habibi-Khorassani, N. Hazeri, M. Nassiri, R. Kakaei, *Phosphorus, Sulfur, and Silicon.*, **2006**, 181, 553.
- [5] J. I. G. Cadogan, *Organophosphorus Reagents in Organic synthesis*: Academic press, New York, **1979**.
- [6] R. Engel, *Synthesis of Carbon-phosphorus Bonds*: CRC press, Boca Raton, FL, **1988**.