



Synthesis of 2-Diethoxyphosphoryl-2-Methyl-5-Phenyl-3,4-Dihydro-2H-Pyrrole-1-Oxide (DEPMPO-Ph): a New Radical Spin-Trap

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SYNTHESIS OF 2-DIETHOXYPHOSPHORYL-2-METHYL-5-PHENYL-3,4-DIHYDRO-2H-PYRROLE-1-OXIDE (DEPMPO-Ph): A NEW RADICAL SPIN-TRAP

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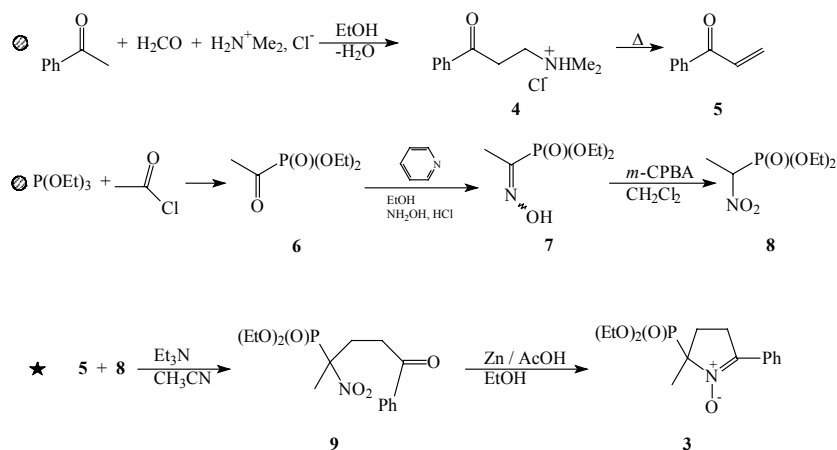
Oxygen-centered radicals are suspected to play an important role in number of pathological processes as inflammatory processes¹, during the ischemia-reperfusion²... The ESR spin-trapping method has been extensively used to study their role. Numerous spin-traps have been prepared^{3,4}, but the most widely used was the 2,2-dimethyl-3,4-dihydro-2H-pyrrole-1-oxide (DMPO) **1** (scheme 1). In the search of new nitrones, we previously reported the synthesis and the features of the spin-trap 2-diethoxyphosphoryl-2-methyl-3,4-dihydro-2H-pyrrole-1-oxide (DEPMPO) **2** (scheme 1)⁵, whose superoxide adduct was shown to be about 15 times more persistent than that of DMPO in phosphate buffer at pH 7.

The introduction of a phenyl group in position 5 will increase the lipophilicity, which can favour the trapping of radicals generated in lipid-rich locations. Furthermore, the potentialities of lipophilic nitrones as neuroprotective agents^{6,7} is largely investigated.



Scheme 1.

We report here, the synthesis of a new spin-trap, the 2-diethoxyphosphoryl-2-methyl-5-phenyl-3,4-dihydro-2H-pyrrole-1-oxide (DEPMPO-Ph) **3** (scheme 2).



Scheme 2.

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