Analysis

^{1}H NMR and ^{13}C NMR spectra were recorded at 300 MHz in CDCl$_3$ (Varian Unity Inova plus, internal TMS). Elemental analyses were obtained on Perkin-Elmer analyser.

HPLC was performed using liquid chromatograph (Alliance, Waters 2690 system) with a Waters photodiode array detector and 3.9 x 150 mm cartridge column (Nova-Pak C18, 60A, 4 µm); solvent system included methanol/water (70/30 v/v, flow rate 1 ml/min).

The active oxygen was determined by iodometric titration.

1-methyl-1-phenylethyl ethyl peroxide: ^{1}H NMR (CDCl$_3$) δ 1.0 (t, J=7.0, 3H), 1.6 (s, 6H), 2.7 (q, J=7.0, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 145.6, 128.4, 128.1, 127.9, 82.6, 70.2, 13.1. Anal. calc. for C$_{11}$H$_{16}$O$_2$: C 73.30%, H 8.95%; found: C 73.10%, H 9.00%. Active(O) calc.: 17.7%; found: 17.6%.

1-methyl-1-phenylethyl propyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.8 (t, J=7.0, 3H), 1.3 (m, 2H), 1.6 (s, 6H), 2.9 (t, J=6.8, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 145.7, 128.3, 127.8, 126.7, 82.6, 77.1, 26.6, 21.2, 10.5. Anal. calc. for C$_{12}$H$_{18}$O$_2$: C 74.19%, H 9,34%; found: C 74.09%, H 9.25%. Active(O) calc.: 16.5%; found: 16.6%.

1-methyl-1-phenylethyl iso-propyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.8 (d, J=6.6, 6H), 1.6 (s, 6H), 3.0 (sept., J=7.0,1H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 144.8, 128.3, 127.8, 126.8, 83.7, 77.8, 26.9, 21.6, 10.7. Anal. calc. for C$_{12}$H$_{18}$O$_2$: C 74.19%, H 9,34%; found: C 74.25%, H 9.21%. Active(O) calc.: 16.5%; found: 17.1%.

1-methyl-1-phenylethyl n-butyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.8 (t, J=7.0, 3H), 1.1 (m, 2H), 1.4 (m, 2H), 1.6 (s, 6H), 3.8 (t, J=6.8, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 147.3, 128.2, 127.7, 127.8, 127.7, 128.1, 82.75, 60.0, 27.1, 15.7, 11.1. Anal. calc. for C$_{13}$H$_{20}$O$_2$: C 74.96%, H 9,68%; found: C 74.12%, H 9.43%. Active(O) calc.: 15.4%; found: 15.0%.

tert-butyl n-butyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.8 (t, J=7.0, 3H), 1.1 (m, 2H), 1.4 (m, 2H), 1.6 (s, 9H), 3.8 (t, J= 6.8, 2H); ^{13}C NMR (CDCl$_3$) δ 147.3, 128.2, 127.7, 127.7, 127.7, 128.1, 82.7, 60.0, 27.0, 15.7, 11.1. Anal. calc. for C$_8$H$_{18}$O$_2$: C 65.71%, H 12,41%; found: C 65.59%, H 12.39%. Active(O) calc.: 21.9%; found: 22.4%.

1-methyl-1-phenylethyl n-pentyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.9 (t, J=7.0, 3H), 1.3 (m, 4H), 1.6 (m, 2H), 1.6 (s, 6H), 3.8 (t, J=6.8, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 145.5,

129.0, 128.2, 127.9, 126.9, 125.5, 82.6, 74.9, 28.2, 27.5, 26.5, 22.4, 13.9. Active(O) calc.: 14.4%; found: 14.1%.

***1-methyl-1-phenylethyl n-hexyl peroxide*:** ^{1}H NMR (CDCl$_3$) δ 0.9 (t, J=7.0, 3H), 1.28 (m, 6H), 1.6 (m, 2H), 1.6 (s, 6H), 3.9 (t, J=6.8, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 145.5, 127.9, 126.9, 125.5, 82.6, 74.9, 31.6, 27.7, 26.5, 25.8, 22.5, 13.9. Active(O) calc.: 13.6%; found: 13.3%.

***1-methyl-1-phenylethyl n-heptyl peroxide*:** ^{1}H NMR (CDCl$_3$) δ 0.9 (t, J=7.0, 3H), 1.3 (m, 8H), 1.6 (m, 2H), 1.6 (s, 6H), 3.9 (t, J=6.8, 2H), 7.3 (m, 5H); ^{13}C NMR (CDCl$_3$) δ 145.5, 127.98 127.00 125.5, 82.6, 74.9, 31.7, 29.1, 27.8, 26.6, 26.1, 22.6, 14.1. Anal. calc. for $C_{16}H_{26}O_2$: C 76.80%, H 10,40%; found: C 74.99%, H 9.57%. Active(O) calc.: 12.8%; found: 12.5%.

di-n-butyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.9 (t, J=7.0, 3H), 1.3 (m, 2H), 1.6 (m, 2H), 4.21 (t, J=6.8, 2H). Active(O) calc.: 21.9%; found: 21.5%.

di sec-butyl peroxide: ^{1}H NMR (CDCl$_3$) δ 0.9 (t, J=7.0, 3H), 1.2 (d, J=6.6, 3H), 1.6 (m, 2H), 4.7 (m, 1H). Active(O) calc.: 21.9%; found: 21.3%.