Determination of basic strength of aliphatic amines through ion pair formation in some ionic liquid solutions

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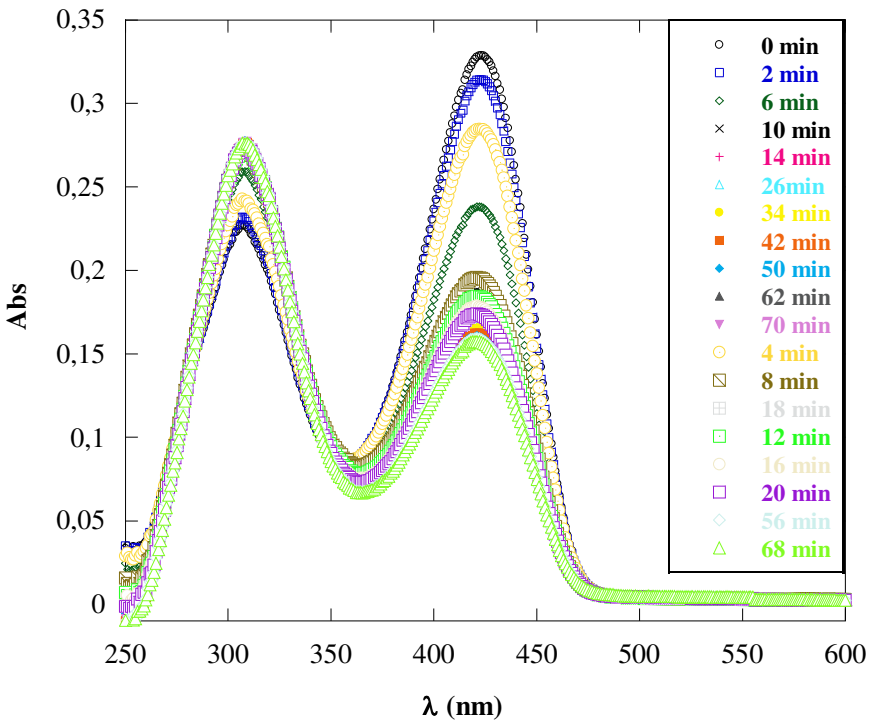
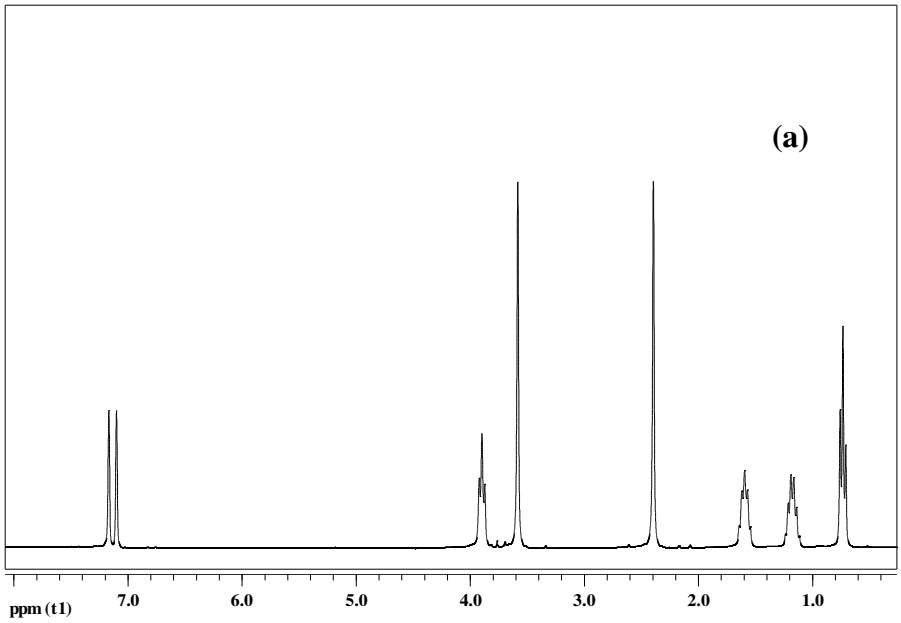
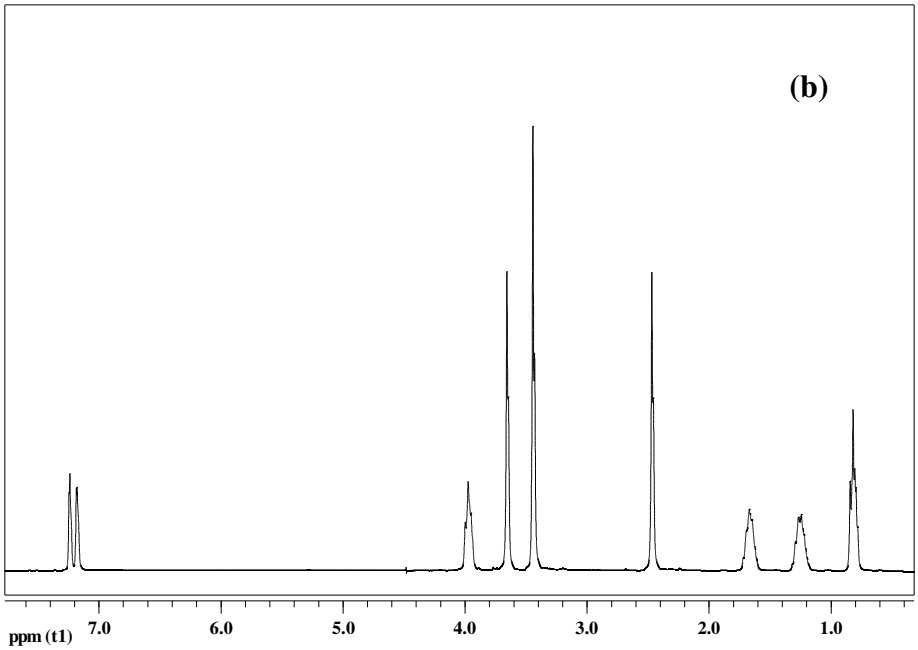
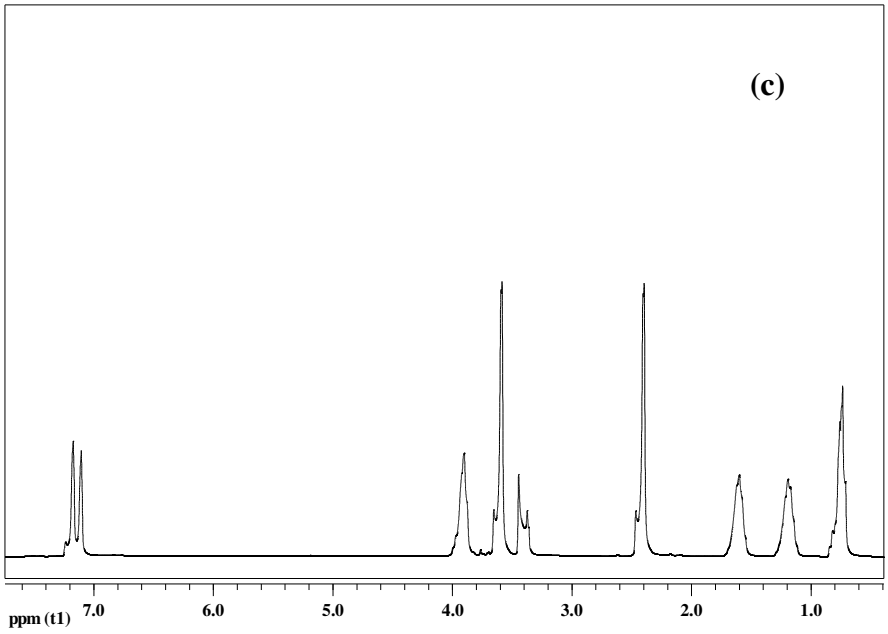


Figure 3. Uv-vis spectra as a function of the time for [bmi$_2$im][NTf$_2$]/*p*-nitrophenol/diisopropylamine (0.01 M).




(b)
ppm (t1)
7.0
6.0
5.0
4.0
3.0
2.0
1.0


(c)
ppm (t1)
7.0
6.0
5.0
4.0
3.0
2.0
1.0

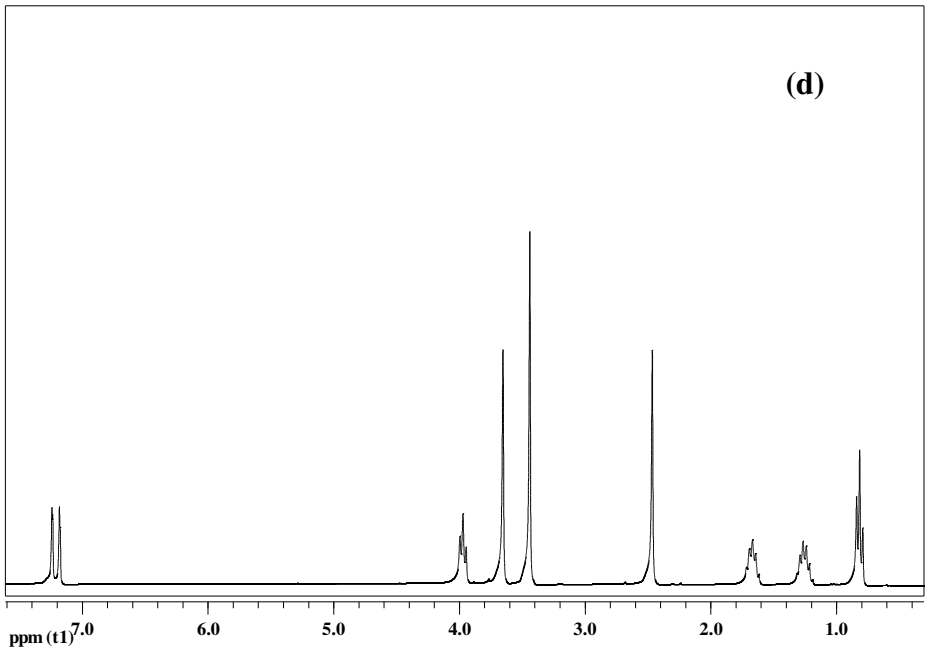
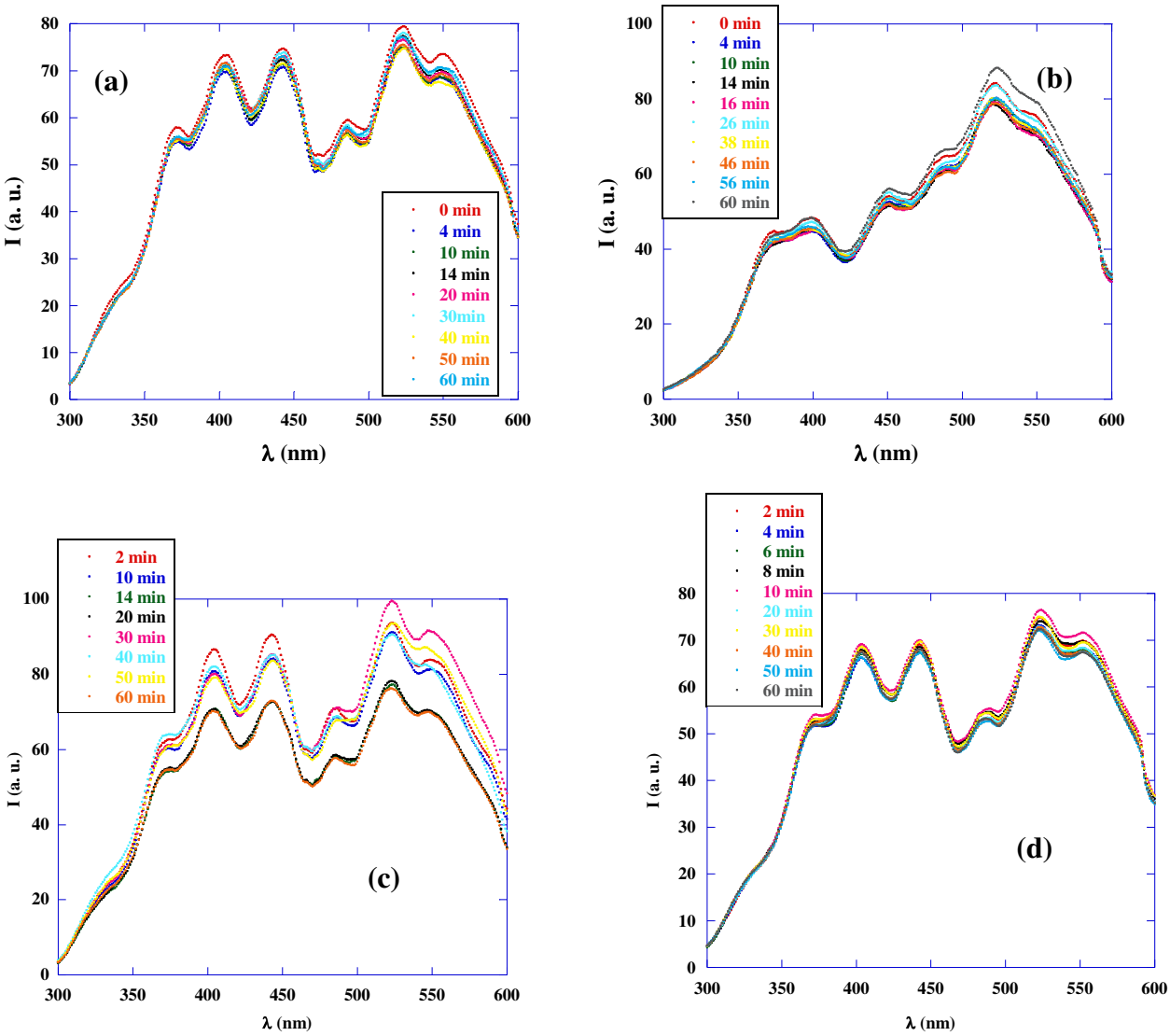


Figure 4. ^{1}H NMR spectra of: (a) neat [bm$_2$im][NTf$_2$]. (b) [bm$_2$im][NTf$_2$] (500 μL) and 1,4-dioxane (75 μL). (c) [bm$_2$im][NTf$_2$] (500 μL), 1,4-dioxane (25 μL) and *p*-nitrophenol (50 μL, $2\cdot10^{-3}$ M in 1,4-dioxane). (d) [bm$_2$im][NTf$_2$] (500 μL), 1,4-dioxane (25 μL), *p*-nitrophenol (50 μL, $2\cdot10^{-3}$ M in 1,4-dioxane) and diisopropylamine (25 μL, 0.01 M in 1,4-dioxane).


(a)
0 min
4 min
10 min
14 min
20 min
30min
40 min
50 min
60 min
I (a. u.)
λ (nm)
(b)
0 min
4 min
10 min
14 min
16 min
26 min
38 min
46 min
56 min
60 min
I (a. u.)
λ (nm)
(c)
2 min
10 min
14 min
20 min
30 min
40 min
50 min
60 min
I (a. u.)
λ (nm)
(d)
2 min
4 min
6 min
8 min
10 min
20 min
30 min
40 min
50 min
60 min
I (a. u.)
λ (nm)

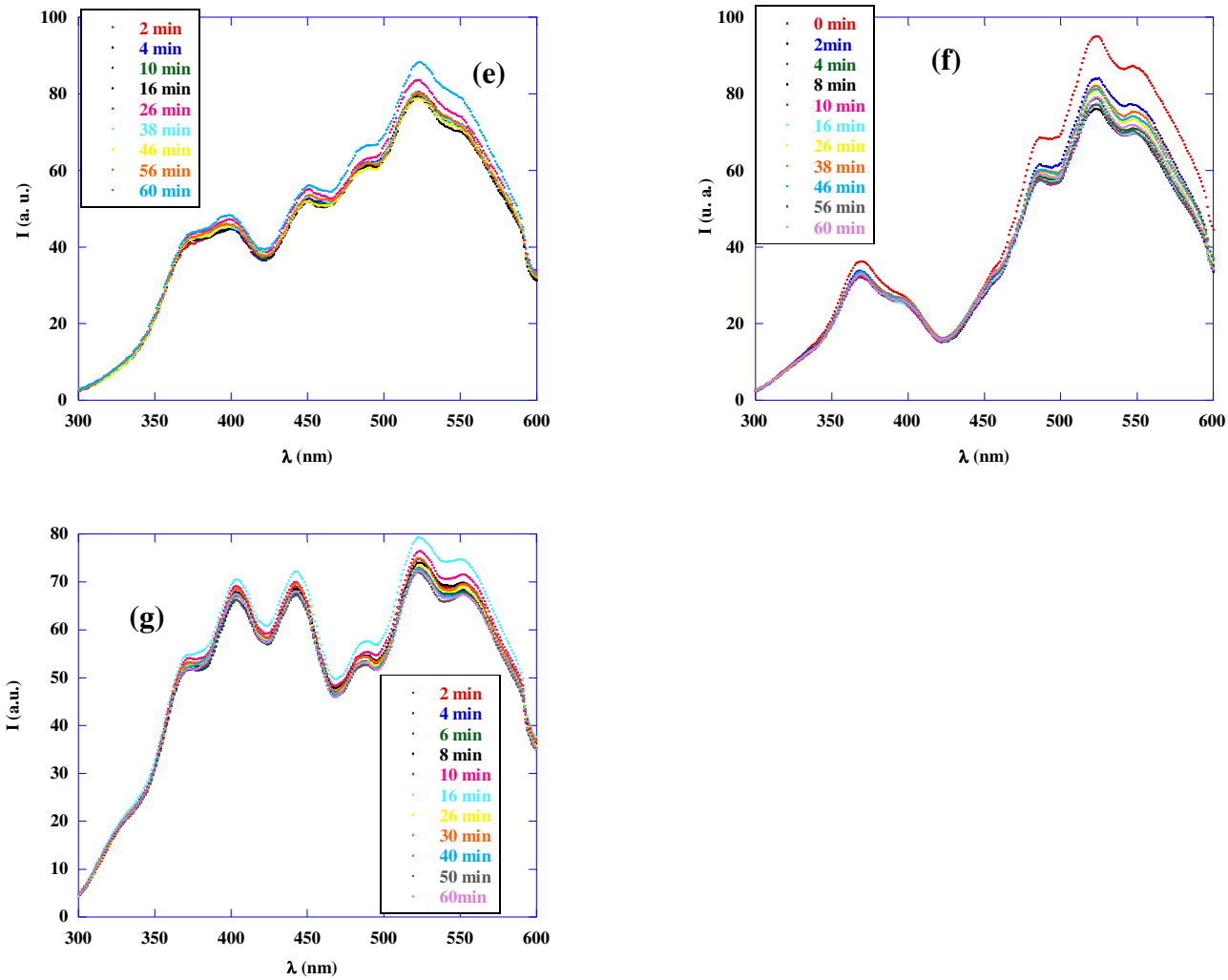


Figure 5. RLS spectra for: (a) [bm_2im][NTf_2] (500 μL), 1,4-dioxane (25 μL) and *p*-nitrophenol (50 μL, $2{\cdot}10^{-3}$ M in 1,4-dioxane). (b) [bm_2im][NTf_2] (500 μL), 1,4-dioxane (50 μL), and butylamine (25 μL, 0.01 M in 1,4-dioxane). (c) [bm_2im][NTf_2] (500 μL), 1,4-dioxane (50 μL), and pyrrolidine (25 μL, 0.01 M in 1,4-dioxane). (d) [bm_2im][NTf_2] (500 μL), 1,4-dioxane (50 μL), and methylpyrrolidine (25 μL, 0.01 M in 1,4-dioxane). (e) [bm_2im][NTf_2] (500 μL), *p*-nitrophenol (50 μL, $2{\cdot}10^{-3}$ M in 1,4-dioxane), and butylamine (25 μL, 0.01 M in 1,4-dioxane). (f) [bm_2im][NTf_2] (500 μL), *p*-nitrophenol (50 μL, $2{\cdot}10^{-3}$ M in 1,4-dioxane), and pyrrolidine (25 μL, 0.01 M in 1,4-dioxane). (g) [bm_2im][NTf_2] (500 μL), *p*-nitrophenol (50 μL, $2{\cdot}10^{-3}$ M in 1,4-dioxane), and methylpyrrolidine (25 μL, 0.01 M in 1,4-dioxane).