

Synthesis of 2-aryl substituted 2,3-dihydroquinazoline-4(1H)-ones under solvent free conditions using ionic liquid as a mild and efficient catalyst

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ABSTRACT

A simple, green and environmentally benign procedure has been developed for the synthesis of 2,3-dihydroquinazoline-4(1H)-ones in basic ionic liquid via the cyclocondensation of 2-amino benzamide with an aldehyde. This offers several advantages such as high yields, simple procedure, low cost, short reaction times, mild and solvent free condition.

1. Introduction

2,3-Dihydroquinazolin-4(1H)-one derivatives are important heterocyclic compounds. These are widely used in biological and pharmaceutical activities [1]. The quinazolinones display wide range of biological activities such as antitumor [2,3], antifibrillatory [4], antidepressant [5], analgesic [6], diuretic [7], antihistamine [8], vasodilating [9], antihypertensive [10], CNS stimulant [11], tranquilizing [12] and antianxiotic [13]. Some representative drug molecules having quinazoline skeleton are shown in Figure 1. These quinazolinones also act as plant growth regulators [14].

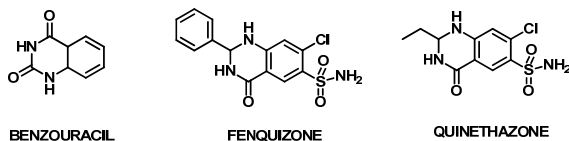
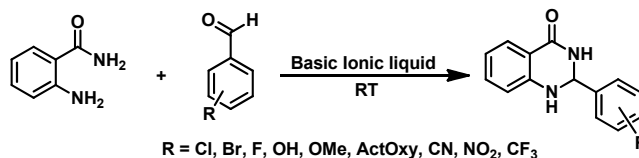


Figure 1. Some marketed drugs with quinazolinone skeleton.

As a consequence, in recent years these 2,3-dihydroquinazolin-4(1H)-ones have become attractive targets in

synthetic chemistry. Development of novel synthetic methodologies to facilitate preparation of desired molecules has become an intense area of research. In this regard, efforts have been made constantly to introduce new methodologies that are efficient and more compatible with the environment. Consequently enormous number of synthetic methods has been developed for the construction of quinazoline alkaloids [15,16]. Among these, condensation of 2-aminobezamide with aldehydes is one of the simple and direct methods for the synthesis of 2,3-dihydroquinazolin-4(1H)-ones. The classical methods for the synthesis of 2,3-dihydroquinazolin-4(1H)-ones are associated with various acid catalysts such as PTSA/NaHSO₃, TiCl₄/Zn, CuCl₂, ionic liquid, TFA, ammonium chloride and chiral phosphoric acid [17,18]. Although these methods are very useful for the synthesis of 2,3-dihydroquinazolin-4(1H)-ones but the reactions involved have major limitations such as expensive reagents, lengthy reaction times, high temperature requirement and also tedious work-up procedures. Therefore, the development of novel method to overcome the limitations for the synthesis of quinazolin-4(1H)-ones is of great importance because of their biological and pharmaceutical importance.



Scheme 1

Over the past decade utility of ionic liquids in catalysis and as neoteric solvent for various synthetic processes has been well recognized by the chemists all over the world. Due to their chemical properties, such as recyclability, negligible vapor pressure, ability to dissolve wide range of substrates and catalysts, thermal stability. Ionic liquids have been considered as viable alternatives to the conventional volatile organic solvents [19-23]. Protic and Bronsted basic liquids, in particular, have received increasing attention for carrying out organic transformations as they can replace volatile organic solvents as well as highly acidic catalytic systems [24-25]. Hence uses of ionic liquids have been found advantageous as they usually involve in simple reaction processes as compared to most of the traditional methods [23].

2. Experimental

2.1. Materials and methods

Works relating to analytical thin layer chromatography were performed using E. Merck silica gel 60F₂₅₄ aluminum plates and were visualized with UV light. The following mobile phases employed for TLC were chloroform, methanol and hexane, and ethyl acetate in different ratios. The instrumental techniques adopted for the characterization of the newly synthesized compounds include ¹H and ¹³C NMR and mass spectroscopy. ¹H and ¹³C NMR spectra were recorded on a Bruker WM (400 and 300 MHz) spectrometer in CDCl₃ or DMSO-*d*₆ solution using tetramethylsilane (TMS) as internal standard. Chemical shifts were recorded in ppm relative to TMS. Mass and purity were recorded on LC-MSD-Trap-XCT (Agilent technologies Inc).

2.2. Synthesis

Mixture of choline chloride (2 g, 0.0143 mmol) and urea (1.72 g, 0.0286 mmol) was heated for 100-200 °C, and at certain temperature it formed into liquid. To this reaction mixture 2-amino benzamide (0.2 g, 0.00147 mmol) and 4-formylphenyl acetate (0.241 g, 0.00147 mmol) were added (Scheme 1). The mixture was stirred for 3 h. Reaction completion was confirmed by TLC. It was extracted with ethyl acetate. The combined organic layer was washed with water, and saturated brine solution followed by using over anhydrous Na₂SO₄. The combined organic layer was evaporated under vacuum pressure and the resulting crude product was purified by column chromatography with ethyl acetate in hexane as eluent which afforded the desired product. The products were identified by ¹H NMR, ¹³C NMR and LC/MS, showed good agreement to the assigned structures.

4-(4-Oxo-1,2,3,4-tetrahydroquinazolin-2-yl)phenyl acetate (Table 1, Entry 1): Color: White solid. Yield: 80%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.27 (s, 1H, NH), 7.58-7.61 (d, 1H, *J* = 7.6 Hz, Ar-H), 7.49-7.52 (d, 2H, *J* = 8.4 Hz, Ar-H), 7.20-7.25 (t, 2H, *J* = 7.3 Hz, Ar-H), 7.11-7.14 (d, 2H, *J* = 8.4 Hz, Ar-H), 6.71-6.74 (d, 1H, *J* = 8.1 Hz, Ar-H), 6.64-6.69 (t, 1H, *J* = 7.5 Hz, CH-NH-), 5.76 (s, 1H, NH), 2.27 (s, 3H, CH₃-CO-O-). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 169.61, 164.00, 150.99, 148.25, 239.53, 133.80, 129.66, 128.51, 127.82, 126.32, 122.18, 117.65, 115.36, 114.80, 66.58, 21.28. MS (*m/z*): 283.20 [M⁺⁺ H]. Anal. calcd. for

C₁₆H₁₄N₂O₃: C, 68.07; H, 5.00; N, 9.92. Found: C, 68.02; H, 4.98; N, 9.87%.

2-(2, 4-Dimethylphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 2): Color: White solid. Yield: 80%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 7.99 (s, 1H, NH), 7.61-7.64 (d, 1H, *J* = 10.28 Hz, Ar-H), 7.40-7.43 (d, 1H, *J* = 10.64 Hz, Ar-H), 7.20-7.23 (t, 1H, *J* = 10.14 Hz, Ar-H), 7.01-7.04 (s, 2H, Ar-H), 6.65-6.79 (m, 3H, CH-NH + Ar-H), 5.93 (s, 1H, NH), 2.37 (s, 3H, Ar-CH₃), 2.26 (s, 3H, Ar-CH₃). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 164.52, 149.01, 138.10, 136.35, 135.57, 133.60, 131.71, 129.66, 128.25, 127.87, 126.86, 117.59, 114.91, 64.51, 21.01, 19.16. MS (*m/z*): 253.30 [M⁺⁺ H]. Anal. calcd. for C₁₆H₁₆N₂O: C, 76.16; H, 6.39; N, 11.10. Found: C, 76.12; H, 6.38; N, 11.12%.

2-(4-Methoxyphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 3): Color: White solid. Yield: 81%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.16 (s, 1H, NH), 7.57-7.60 (d, 1H, *J* = 7.72 Hz, Ar-H), 7.38-7.41 (d, 2H, *J* = 8.67 Hz, Ar-H), 7.19-7.24 (t, 1H, *J* = 7.83 Hz, Ar-H), 6.98 (s, 1H, Ar-H), 6.91-6.94 (d, 2H, *J* = 8.7 Hz, Ar-H), 6.70-6.73 (d, 1H, *J* = 7.95 Hz, Ar-H), 6.63-6.68 (t, 1H, *J* = 7.23 Hz, CH-NH), 5.68 (s, 1H, NH), 3.73 (s, 3H, CH₃-O-). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 164.13, 159.89, 148.46, 133.94, 128.65, 127.79, 117.52, 115.46, 114.86, 114.09, 66.75, 55.63. MS (*m/z*): 255.28 [M⁺⁺ H]. Anal. calcd. for C₁₅H₁₄N₂O₂: C, 70.85; H, 5.55; N, 11.02. Found: C, 70.80; H, 5.53; N, 11.00%.

2-(3, 4-Dimethoxyphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 4): Color: White solid. Yield: 82%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.06 (s, 1H, NH), 7.60-7.62 (d, 1H, *J* = 7.71 Hz, Ar-H), 7.15-7.26 (m, 3H, Ar-H), 6.83 (s, 1H, Ar-H), 6.65-6.73 (m, 3H, CH-NH, Ar-H), 5.99 (s, 1H, NH), 3.80 (s, 3H, Ph-OCH₃), 3.70 (s, 3H, Ph-OCH₃). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 164.75, 153.20, 146.69, 145.49, 134.54, 134.18, 128.60, 121.62, 119.53, 117.02, 116.72, 115.08, 114.70, 61.44, 56.17. MS (*m/z*): 285.11 [M⁺⁺ H]. Anal. calcd. for C₁₆H₁₆N₂O₃: C, 67.59; H, 5.67; N, 9.85. Found: C, 67.56; H, 5.68; N, 9.82%.

2-(4-Fluorophenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 5): Color: White solid. Yield: 88%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.26 (s, 1H, NH), 7.58-7.60 (d, 1H, *J* = 7.47 Hz, Ar-H), 7.49-7.54 (m, 2H, Ar-H), 7.17-7.25 (m, 3H, Ar-H), 7.08 (s, 1H, Ar-H), 6.71-6.74 (d, 1H, *J* = 8.04 Hz, Ar-H), 6.64-6.69 (t, 1H, *J* = 7.41 Hz, CH-NH), 5.75 (s, 1H, NH). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 163.79, 161.36, 148.27, 138.25, 133.83, 129.50, 127.83, 117.72, 115.43, 115.41, 114.91, 66.39. MS (*m/z*): 243.24 [M⁺⁺ H]. Anal. calcd. for C₁₄H₁₁FN₂O: C, 69.41; H, 4.58; N, 11.56. Found: C, 69.40; H, 4.58; N, 11.53%.

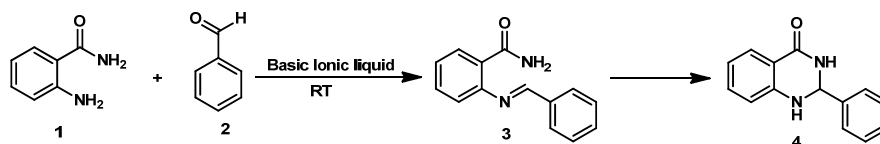
2-(4-Chlorophenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 6): Color: White solid. Yield: 87%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.32 (s, 1H, NH), 7.58-7.60 (d, 2H, *J* = 7.68 Hz, Ar-H), 7.42-7.51 (m, 3H, Ar-H), 7.20-7.25 (t, 1H, *J* = 7.23 Hz, Ar-H), 7.12 (s, 1H, Ar-H), 6.71-6.74 (d, 1H, *J* = 8.10 Hz, Ar-H), 6.64-6.69 (t, 1H, *J* = 7.53 Hz, CH-NH), 5.75 (s, 1H, NH). ¹³C NMR (75 MHz, DMSO-*d*₆, δ, ppm): 163.79, 161.36, 148.27, 138.27, 138.24, 133.83, 129.55, 129.46, 127.83, 117.72, 115.45, 111.41, 114.91, 66.39. MS (*m/z*): 259.70 [M⁺⁺ H]. Anal. calcd. for C₁₄H₁₁ClN₂O: C, 65.00; H, 4.29; N, 10.83. Found: C, 65.02; H, 4.26; N, 10.82%.

4-(4-Oxo-1, 2, 3, 4-tetrahydroquinazolin-2-yl)benzotrile (Table 1, Entry 7): Color: White solid. Yield: 90%. ¹H NMR (300 MHz, DMSO-*d*₆, δ, ppm): 8.47 (s, 1H, NH), 7.85-7.87 (d, 2H, *J* = 8.4 Hz, Ar-H), 7.64-7.66 (d, 2H, *J* = 8.4 Hz, Ar-H), 7.58-7.60 (t, 1H, *J* = 7.6 Hz, Ar-H), 7.23-7.28 (m, 2H, Ar-H), 6.74-6.76 (d, 1H,

Table 1. Synthesis of 2,3-dihydroquinazolin-4(1H)-ones.

Entry	R ₁	R ₂	Product ^{a,b}	Reaction time (h)	Yield (%)
1				4	80
2				4	80
3				4	81
4				4	82
5				3	88
6				3	87
7				3	90
8				3	90
9				3	88
10				5	80
11				5	81
12				5	83
13				5	85
14				5	85

^a Reaction condition: Choline chloride (1 mmol), urea (2 mmol), 2-amino benzamide (1 mmol), aldehyde (1 mmol) at room temperature.^b Isolated yield.



Scheme 2

$J = 8.0$ Hz, Ar-H), 6.66-6.69 (t, 1H, $J = 7.2$ Hz, CH-NH), 5.84 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 163.30, 147.34, 147.31, 133.53, 132.39, 127.67, 127.37, 118.64, 117.40, 114.88, 114.49, 111.04, 65.50. MS (m/z): 250.26 [M^+ H]. Anal. calcd. for $\text{C}_{15}\text{H}_{11}\text{N}_3\text{O}$: C, 72.28; H, 4.45; N, 16.86; Found: C, 72.27; H, 4.40; N, 16.84%.

2-(6-(Trifluoromethyl)pyridin-3-yl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 8): Color: White solid. Yield: 90%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.86 (s, 1H, Ar-H), 8.50 (s, 1H, NH), 8.14-8.16 (d, 1H, $J = 7.2$ Hz, Ar-H), 7.95-7.97 (d, 1H, $J = 8.0$ Hz, Ar-H), 7.61-7.63 (d, 1H, $J = 7.2$ Hz, Ar-H), 7.26-7.30 (m, 2H, Ar-H), 6.76-6.78 (d, 1H, $J = 8.0$ Hz, Ar-H), 6.70-6.74 (t, 1H, $J = 7.2$ Hz, CH-NH-), 5.98 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 163.38, 149.02, 147.33, 146.17, 140.84, 136.76, 133.63, 127.44, 122.92, 120.20, 117.77, 115.00, 114.64, 63.99. MS (m/z): 294.24 [M^+ H]. Anal. calcd. for $\text{C}_{14}\text{H}_{10}\text{F}_3\text{N}_3\text{O}$: C, 57.34; H, 3.44; N, 14.33. Found: C, 57.34; H, 3.42; N, 14.32%.

2-(4-Nitrophenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 9): Color: Yellow solid. Yield: 88%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.50 (s, 1H, NH), 8.22-8.35 (d, 2H, $J = 8.61$ Hz, Ar-H), 7.71-7.74 (d, 2H, $J = 8.5$ Hz, Ar-H), 7.58-7.60 (d, 1H, $J = 7.62$ Hz, Ar-H), 7.22-7.27 (t, 2H, $J = 7.95$ Hz, Ar-H), 6.73-6.76 (d, 1H, $J = 8.07$ Hz, Ar-H), 6.64-6.69 (t, 1H, $J = 7.47$ Hz, CH-NH-), 5.87 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 163.72, 149.78, 147.89, 147.89, 147.68, 143.00, 128.48, 127.86, 124.02, 117.91, 115.37, 115.00, 67.75. MS (m/z): 270.08 [M^+ H]. Anal. calcd. for $\text{C}_{14}\text{H}_{11}\text{N}_3\text{O}_3$: C, 62.45; H, 4.12; N, 15.61. Found: C, 62.43; H, 4.10; N, 15.60%.

2-(3-Bromo-5-methoxyphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 10): Color: White solid. Yield: 80%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.11 (s, 1H, NH), 7.62-7.64 (d, 1H, $J = 7.56$ Hz, Ar-H), 7.49-7.52 (d, 1H, $J = 8.72$ Hz, Ar-H), 7.45 (s, 1H, Ar-H), 7.23-7.27 (t, 1H, $J = 7.04$ Hz, Ar-H), 7.03-7.05 (d, 1H, $J = 8.72$ Hz, Ar-H), 6.88 (s, 1H, Ar-H), 6.76-6.78 (d, 1H, $J = 8.08$ Hz, Ar-H), 6.67-6.71 (t, 1H, $J = 7.36$ Hz, CH-NH-), 5.98 (s, 1H, NH), 3.83 (s, 3H, Ar-OCH $_3$). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 164.07, 156.24, 148.11, 133.86, 132.58, 131.84, 129.91, 131.84, 129.91, 127.78, 117.76, 115.01, 114.97, 114.13, 112.08, 61.19, 56.41. MS (m/z): 334.17 [M^+ H]. Anal. calcd. for $\text{C}_{15}\text{H}_{13}\text{BrN}_2\text{O}_2$: C, 54.07; H, 3.93; N, 8.41. Found: C, 54.06; H, 3.92; N, 8.40%.

2-(3-Chloro-2-hydroxyphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 11): Color: White solid. Yield: 81%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.02 (s, 1H, NH), 7.59-7.62 (d, 1H, $J = 7.74$ Hz, Ar-H), 7.29-7.33 (m, 2H, Ar-H), 7.19-7.24 (t, 1H, $J = 7.63$ Hz, Ar-H), 6.81-6.86 (t, 1H, $J = 7.8$ Hz, Ar-H), 6.73-6.76 (d, 2H, $J = 8.04$ Hz, Ar-H), 6.64-6.69 (t, 1H, $J = 7.17$ Hz, CH-NH-), 6.06 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 164.28, 150.87, 148.32, 133.74, 130.88, 129.92, 127.79, 126.62, 121.63, 120.50, 117.76, 115.09, 62.22. MS (m/z): 275.05 [M^+ H]. Anal. calcd. for $\text{C}_{14}\text{H}_{11}\text{ClN}_2\text{O}_2$: C, 61.21; H, 4.04; N, 10.20. Found: C, 61.20; H, 4.02; N, 10.20%.

2-(2-Chloro-6-hydroxy-4-methoxyphenyl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 12): Color: White solid. Yield: 83%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 9.40 (s, 1H, Ph-OH), 8.01 (s, 1H, NH), 7.61-7.63 (d, 1H, $J = 7.6$ Hz, Ar-H), 7.22-7.25 (t, 1H, $J = 7.2$ Hz, Ar-H), 6.91 (s, 1H, Ar-H), 6.80 (s, 1H, Ar-H), 6.75-6.77 (d, 2H, $J = 8.08$ Hz, Ar-H), 6.66-6.70 (t, 1H, $J = 7.48$ Hz, CH-NH-), 6.01 (s, 1H, NH), 3.83 (s, 3H, Ph-OCH $_3$). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 164.17, 148.92, 148.25, 143.17, 133.78,

129.44, 127.78, 122.68, 118.81, 117.70, 115.70, 115.01, 112.38, 61.33, 56.83. MS (m/z): 305.72 [M^+ H]. Anal. calcd. for $\text{C}_{15}\text{H}_{13}\text{ClN}_2\text{O}_3$: C, 59.12; H, 4.30; N, 9.19. Found: C, 59.10; H, 4.29; N, 9.17%.

2-(Benzo[d][1,3]dioxol-5-yl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 13): Color: White solid. Yield: 85%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.20 (s, 1H, NH), 7.57-7.59 (d, 1H, $J = 7.71$ Hz, Ar-H), 7.19-7.25 (t, 1H, $J = 7.5$ Hz, Ar-H), 6.87-7.02 (m, 4H, Ar-H), 6.71-6.73 (d, 1H, $J = 8.1$ Hz, Ar-H), 6.65-6.68 (t, 1H, $J = 7.23$ Hz, CH-NH-), 5.99 (s, 2H, Ph-O-CH $_2$), 5.65 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 164.02, 148.27, 147.75, 136.03, 133.73, 127.78, 120.87, 117.59, 115.42, 114.87, 108.30, 107.61, 101.56, 66.73. MS (m/z): 269.26 [M^+ H]. Anal. calcd. for $\text{C}_{15}\text{H}_{12}\text{N}_2\text{O}_3$: C, 67.16; H, 4.51; N, 10.44. Found: C, 67.14; H, 4.51; N, 10.42%.

2-(Thiophen-2-yl)-2, 3-dihydroquinazolin-4(1H)-one (Table 1, Entry 14): Color: White solid. Yield: 85%. ^1H NMR (300 MHz, DMSO- d_6 , δ , ppm): 8.43 (s, 1H, NH), 7.59-7.61 (d, 1H, $J = 7.62$ Hz, Ar-H), 7.42-7.44 (d, 1H, $J = 4.98$ Hz, Ar-H), 7.22-7.27 (t, 2H, $J = 6.9$ Hz, Ar-H), 7.10-7.11 (d, 1H, $J = 3.18$ Hz, Ar-H), 6.94-6.97 (t, 1H, $J = 84.27$ Hz, Ar-H), 6.73-6.76 (d, 1H, $J = 8.13$ Hz, Ar-H), 6.66-6.71 (t, 1H, $J = 7.38$ Hz, CH-NH-) 6.00 (s, 1H, NH). ^{13}C NMR (75 MHz, DMSO- d_6 , δ , ppm): 147.68, 146.90, 133.81, 127.76, 126.90, 126.32, 126.13, 117.96, 115.36, 63.01. MS (m/z): 231.20 [M^+ H]. Anal. calcd. for $\text{C}_{12}\text{H}_{10}\text{N}_2\text{OS}$: C, 62.59; H, 4.38; N, 12.16. Found: C, 62.57; H, 4.38; N, 12.17%.

3. Results and discussion

In continuation numbers of our efforts in the development of novel, environ-friendly and synthetic methodologies [26-33], we report here a mild and efficient one-pot protocol for the synthesis of 2,3-dihydroquinazolin-4(1H)-one derivatives by two component reactions catalysed by ionic liquid under mild condition (Scheme 1). The reaction when tried with different aldehydes, diverse functional groups played significant roles in achieving the product yield. Aldehydes with electron withdrawing group react with 2-amino benzaldehyde giving better yield (Table 1 entries 5-9). Whereas, aldehydes with electron releasing and both electron releasing and withdrawing give moderate yields (Table 1 entries 1-4 and 10-14). A mixture of 2-amino benzamide (1 mmol) and aromatic aldehyde (1 mmol) in ionic liquid was stirred at room temperature for 3-4 h without an inert atmosphere. When the reaction was complete the product was purified by column chromatography. The scope of the reaction was examined with various aromatic aldehydes and the results are summarized in Table 1.

A possible mechanism of the basic ionic liquid catalysed reaction of 2-amino benzamide and aldehydes is proposed in Scheme 2. 2-Amino benzamide 1 condensation of the aromatic aldehyde 2 with ionic liquid gives imine 3 which undergoes cyclisation to afford dihydroquinazolinone product 4.

4. Conclusion

In summary, we have developed a direct and efficient method for the preparation of 2,3-dihydroquinazolin-4(1H)-ones using basic ionic liquid via cyclocondensation of 2-amino benzamide with an aldehyde. The simplicity of the procedure, easy work up, excellent yields, short reaction times, easy

handling and use of ecofriendly, non-volatile, less expensive reagents are the advantages claimed by this method.

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