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Original Research Article

Synthesis of 2-chloro-benzamides for evaluation antimicrobial and disinfectant activity: Part-I

Sakshi Ghare[1]*

[1]*Dept. of Pharmacy, CAYMET's Siddhant College of Pharmacy, Pune, Maharashtra, India*

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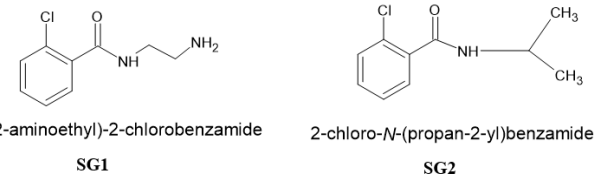
ABSTRACT

2-Chlorobenzamide derivatives have been synthesized and claimed in this research study. The compound SG1 and SG2 were synthesized by known methods Ethylene diamine and isopropyl amine was dissolved in ethanolic 1 N NaOH separately and to it 2-Chlorobenzoyl chloride was added. The products SG1 and SG2 were collected respectively.

1. Introduction

Benzamide derivatives are known for its versatile medicinal properties.[1] Some of the pharmacological properties of benzamide derivatives include antipsychotic,[2] antihypertensive,[3] antibacterial[4] and antimicrobial[5] properties. The structure of the claimed compounds has been shown in Figure 1. The synthesis of benzamides have been reported by many authors.[6]



N-(2-aminoethyl)-2-chlorobenzamide
SG1

2-chloro-*N*-(propan-2-yl)benzamide
SG2

Figure 1: Compounds SG1 and SG2

2. Materials and Methods

TLC was performed on 524nm Merk TLC plates. All chemicals were of synthetic grade and 98% purisis grade. TLC was eluted with 3 different solvents to check the purity of the compounds and visualized in Iodine chamber and further in UV chamber. The 1H-NMR was performed on Bruker 400 MHZ NMR before which FT-IR was performed on Perkin Elmer spectrophotometer. The synthetic scheme for the claimed compounds has been shown in Figure 2.

2.1. Synthetic scheme

N-(2aminoethyl)-2-chlorobenzamide (SG1): An equimolar solution of ethylene diamine was dissolved in 10 ml of ethanolic 1 N NaOH in round bottom flask and to it 2-Chlorobenzoyl chloride was added dropwise from dropping funnel with continuous stirring for 3 hrs at room temperature. The stirring was conducted on magnetic stirrer with magnetic bead in the ethylene diamine solution. The compound that separated out after 3 hrs was dried. The compound SG1 was washed with ethanol and further dried again washed with NaOH and water and air dried.

* *Corresponding author*.
E-mail address: gharesakshi4@gmail.com (S. Ghare).

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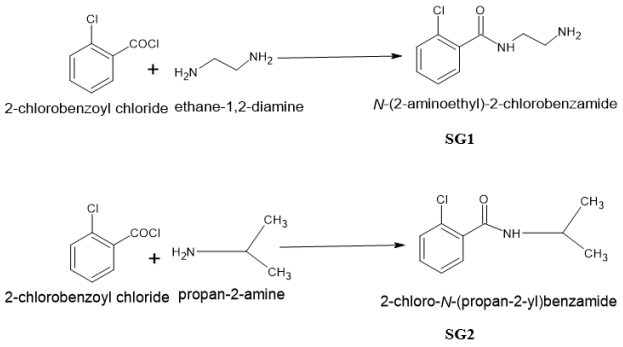

Figure 2: Synthetic Scheme for compound SG1 and SG2

1. ***FT-IR*** ***(λ, cm*** $^{-1}$ ***):*** 3439.6, 3102.9, 3097.8, 3023.5, 2952.4, 1718.8, 1584.8, 1566.3, 1489.0, 1486.2, 1398.6, 1239.6, 1222.2, 1192.9, 1171.1, 929.0, 893.0, 884.5, 1222.2, 1192.9, 11717.1, 929.0, 893.0, 884.5, 786.6, 712.5, 697.0
2. ^{1} ***HNMR (δ shift in ppm):*** 2.83 (2H, t, J = 7.2 Hz), 3.47 (2H, t, J = 7.2 Hz), 7.32-7.59 (3H, 7.39 (ddd, J = 8.1, 7.6, 1.4 Hz), 7.51 (ddd, J = 8.4, 7.6, 1.5 Hz), 7.53 (ddd, J = 8.4, 1.4, 0.5 Hz)), 7.90 (1H, ddd, J = 8.1, 1.5, 0.5 Hz)
3. ***2-chloro-N-(propan-2-yl) benzamide (SG2) :*** The procedure for the SG1 was repeated and in place of ethylene diamine, isopropyl amine was used. Rest of the procedure remains same.
4. ***FT-IR (λ, cm*** $^{-1}$ ***):*** 3459.5, 3436.1, 3384.5, 3114.3, 3098.6, 30882, 3076.0 , 2934.3 , 1743.0, 1584.3, 1570.5, 1551.5, 1448.0, 1450.0, 1492.2, 1149.2, 1072.1, 1023.3, 939.6.
5. ^{1} ***H-NMR (δ shift in ppm) :*** 1.17 (6H, d, J = 6.8 Hz), 4.20 (1H, sept, J = 6.8 Hz), 7.32-7.59 (3H, 7.39 (ddd, J = 8.1, 7.6, 1.4 Hz), 7.51 (ddd, J = 8.4, 7.6, 1.5 Hz), 7.53 (ddd, J = 8.4, 1.4, 0.5 Hz)), 7.90 (1H, ddd, J = 8.1, 1.5, 0.5 Hz).

3. Results and Discussion

The compounds complied with IR and NMR spectral data and confirmed to be syhthesized.

4. Conclusion

From the IR and 1H-NMR data of the compounds, it was confirmed that the compounds were synthesized in Part-I of this paper. Further the evaluation of the compounds shall be done in Part-II of the paper.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Sakshi Ghare, Student

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