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Original Research Article

Synthesis of 4-nitro-Benzoates for evaluation antimicrobial and disinfectant activity: Part-I

Prachit Gopiwad[1]*

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

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ABSTRACT

4-nitro-benzoates derivatives have been synthesized by known literature methods and found that they are easy to synthesize. The compound PG1 and PG2 were synthesized by known methods. Resorcinol and p-cresol was dissolved in ethanolic 1 N NaOH separately and to it 4-nitro-benzoyl chloride was added. The products PG1 and PG2 were collected respectively.

1. Introduction

Benzoates are the soft drugs and mostly release the parent moiety. Several of the benzoates have shown potent antimicrobial[1–4] and antiseptic[5] properties. In this paper the synthesis such 4-Nitro Benzoates is being reported., which shall be evaluated for antimicrobial and disinfectant activities in later series of paper.

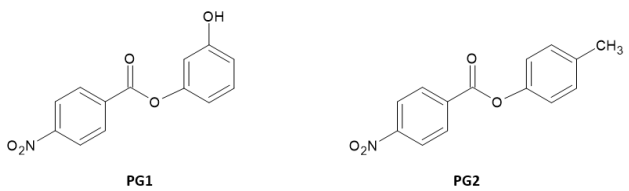

Figure 1: CompoundsPG1 and PG2

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.

3-hydroxyphenyl-4-nitrobenzoate (PG1): An equimolar solution of ethylene diamine was dissolved in 10 ml of ethanolic 1 N NaOH in round bottom flask and to it 4-nitro-benzoyl 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 cresol solution. The compound that separated out after 3 hrs was dried. The compound was washed with ethanol and further dried again washed with NaOH and water and air dried.

^{1}HNMR (δ shift in ppm): 6.86-7.04 (2H, 6.93 (ddd, J = 8.2, 2.7, 1.8 Hz), 6.99 (ddd, J = 2.7, 1.7, 0.5 Hz)), 7.14 (1H, ddd, J = 8.1, 1.8, 1.7 Hz), 7.29 (1H, ddd, J = 8.2, 8.1, 0.5 Hz), 7.97 (2H, ddd, J = 8.6, 1.4, 0.5 Hz), 8.16 (2H, ddd, J =

* *Corresponding author*.
E-mail address: pgopidwad@gmail.com (P. Gopiwad).

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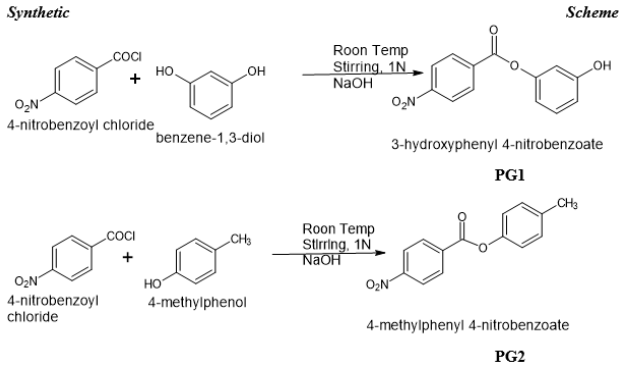

Figure 2: Synthetic scheme for PG1 and PG2

8.6, 1.7, 0.5 Hz).

4-methylphenyl-4-nitrobenzoate (PG2): The procedure for the VG1 was repeated and in place of resorcinol, p-cresol was used. Rest of the procedure remains same.

^{1}HNMR (δ shift in ppm): 2.23 (3H, s), 6.96-7.18 (4H, 7.02 (ddd, J = 8.3, 1.4, 0.5 Hz), 7.12 (ddd, J = 8.3, 1.5, 0.5 Hz)), 7.97 (2H, ddd, J = 8.6, 1.4, 0.5 Hz), 8.16 (2H, ddd, J = 8.6, 1.7, 0.5 Hz).

3. Results and Discussion

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

4. Conclusion

The Benzoates of 4-Nitro benzoyl chlorides were synthesized with p-cresol and resorcinol respectively.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Prachit Gopiwad, Student

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