**ANSWERS TO REVIEWERS**

We thank the Referees for their interest in our work and for helpful comments that will greatly improve the manuscript and we have tried to do our best to respond to the points raised. The Referees have brought up some good points and we appreciate the opportunity to clarify our research objectives and results. As indicated below, we have checked all the general and specific comments provided by the Referees and have made necessary changes accordingly to their indications.

**Referees report JSCS 1664**

**Synthesis and antimicrobial activity of new 3,5-diarylidene-4-piperidone derivatives**

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**C1.** Scheme 1 should be corrected in following issues:

 - Compounds **3a**, **3b**, **3d** and **3f** were isolated as HCl salts, but derivatives **3c** and **3e** not. They were isolated in the basic form.

 - Compounds **8** were isolated as TFA salts.

 - Structures for Ar, R1 and R2 groups must be given in Scheme 1, or complete structures for corresponding reactants and products. Without those structures spectral and analytical data and nomenclature could not be checked.

**A1.** As suggested by Referee,

-Compounds **3a**, **3b**, **3d** and **3f** were mentioned as HCl salts in **Table 1**. Similarly, derivatives **3c** and **3e** were mentioned as basic form in **Table-1**.

-We have further investigated the compounds **8a** and **8b** with skilled person about the TFA salt confirmation through 13C NMR. Result showed that, we have not observed the signals for TFA salt in 13C NMR. Finally, we concluded the compounds **8a** and **8b** were isolated as free bases. Author really apologize for this mistake. Thus, we have not captured TFA salt information in the table.

-Structure for Ar, R1 and R2 groups are mentioned in **Tables 1, 2, 3, 4, 5** and **6** with corresponding reactants and products.

TABLE 1. Synthesis of compounds **3(a-f)**

****

|  |  |  |
| --- | --- | --- |
| **Entry** | **ArCHO** | **3(a-f)** |
| **3a** |  |  |
| **3b** |  |  |
| **3c** |  |  |
| **3d** |  |  |
| **3e** |  |  |
| **3f** |  |  |

TABLE 2. Synthesis of compounds **5(a-f)**

****

|  |  |  |
| --- | --- | --- |
| **Entry** | **3(a-f)** | **5(a-f)** |
| **5a** |  |  |
| **5b** |  |  |
| **5c** |  |  |
| **5d** |  |  |
| **5e** |  |  |
| **5f** |  |  |

TABLE 3. Synthesis of compounds **5(g-l)**

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|  |  |  |  |
| --- | --- | --- | --- |
| **Entry** | **3(a-c)** | **R1SO2Cl** | **5(g-l)** |
| **5g** |  |  |  |
| **5h** |  |  |  |
| **5i** |  |  |  |
| **5j** |  |  |  |
| **5k** |  |  |  |
| **5l** |  |  |  |

TABLE 4. Synthesis of compounds **5(m-q)**

****

|  |  |  |
| --- | --- | --- |
| **Entry** | **R1SO2Cl** | **5(m-q)** |
| **5m** |  |  |
| **5n** |  |  |
| **5o** |  |  |
| **5p** |  |  |
| **5q** |  |  |

TABLE 5. Synthesis of compounds **7(a-b)**

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|  |  |  |
| --- | --- | --- |
| **Entry** | **6(a-b)** | **7(a-b)** |
| **7a** |  |  |
| **7b** |  |  |

TABLE 6. Synthesis of compounds **8(a-b)**



|  |  |  |
| --- | --- | --- |
| **Entry** | **7(a-b)** | **8(a-b)** |
| **8a** |  |  |
| **8b** |  |  |

**C2.** Derivatives **3a**, **3b**, **3d**, **3f** and **8** were tested as salts, other derivatives were tested as neutral compounds, but that was not quoted or discussed neither in the main text nor in the Table 1. Do different forms (salts or neutral molecules) of tested compounds influence their biological activities? If not, how that was checked?

**A2.** As suggested by Referee, we have captured the salt and neutral forms of all synthesized compounds in **Tables 1**, **2**, **3**, **4**, **5** and **6**. Further, compounds **3a**, **3b**, **3d** and **3f** were isolated as HCl salts which we mentioned in the main text, especially in antimicrobial evaluation part. However, we tested the biological activities for compounds **3a**, **3b**, **3d** and **3f** as HCL salt and compounds **3c** and **3e** were tested as basic form.

**C3.** ESI-HRMS data (calculated and found values) must be given with four decimal places.

**A3.** As suggested by Referee, we have captured the ESI-HRMS data (calculated and found values) for all synthesized compounds in four decimals.

**C4.** Major bands from IR spectra for all compounds should be given along with other spectral data.

**A4.** As suggested by Referee, we have captured the major bands from IR for all compounds along with other spectral data in supplementary part.

**C5.** Since combustion analysis were omitted, copies of 1H and 13C NMR spectra for all compounds should be provide as supplementary information (SI2).

**A5.** Copies of 1H and 13C NMR spectra with structure for all the synthesised compounds have been captured in the supplementary part.

**C6**. In 13C NMR spectra of derivatives 8, presence of CF3CO2- was not confirmed.

A6. Compounds **8a** and **8b** were isolated as free bases. Author really apologize for this mistake about the TFA salt.

**C7.** Is it possible to use derivative **3f** in performed reactions without previous protection of hydroxyl group?

**A7.** Yes, it is possible. We have performed the reaction for synthesis of **5f** using **3f** without protection of hydroxyl group and obtained only 64% of yield. At present, we have performed only the preliminary scanning of compound **5f**, which we required very minimal sample. Thus, we have not protected the hydroxyl group during the synthesis of compound **5f**.

**C8.** Since substantial numbers of compounds were obtained, authors should consider giving structures of compounds with corresponding spectral data in SI.

**A8.** As suggested by Referee, we have captured the corresponding structure for all the synthesised compounds with corresponding spectral data in the supplementary part.

**C9.** Derivative **5e** showed best antifungal activity, not promising. Also, **5b**, **5p** and **5d** are less active (not much, but less) corresponding to **5e**, and could not be characterised as excellent active.

Discussion of obtained biological results should be more appropriate.

**A9.** As suggested by Referee, we have modified the biological results. Especially, compound **5e** mentioned as best antifungal activity.

**C10.** Last, but not less important. English and spelling should be revised.

**A10.** As suggested by Referee, we have checked the spelling and modified the English format in the manuscript as per the journal requirement.