Open Review

(x) I would not like to sign my review report
( ) I would like to sign my review report

English language and style

( ) English very difficult to understand/incomprehensible
( ) Extensive editing of English language and style required
( ) Moderate English changes required
(x) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	(x)	( )	( )
Are all the cited references relevant to the research?	(x)	( )	( )	( )
Is the research design appropriate?	(x)	( )	( )	( )
Are the methods adequately described?	( )	(x)	( )	( )
Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

In my opinion the manuscript entitled "Homoleptic complexes of heterocyclic curcuminoids with Mg and Cu: first conformationally heteroleptic case, crystal structures and biological properties" is consistent with the subject of the journal and the work is up-to-date. The introduction is short but provides a good background for the issues presented. The authors describe the interesting research of copper and magnesium complexes of heterocyclic curcuminoid. The synthesis and crystallization process is quite good describe. The chemical characterization of obtained compounds is very deep and gives interesting results. Moreover the biological evaluation gives great results what makes this manuscript valuable multidisciplinary report. Unfortunately, the authors did not manage to avoid a few mistakes, which, however, are classified as minor and do not diminish work in any way. Nevertheless, I think that this work requires minor revision before publication in Molecules. The most important matter needed correction are listed, below:

1. The short and most common use name of Infrared Spectroscopy is IR. I recommend to use this short instead IS.

   Done.

2. It will be nice to add the simulation of EPR spectra, which can provide more EPR parameters.

   Thank you very much for your suggestion but unfortunately we do not have the means at this time to be able to carry out the EPR simulation, we will take your recommendation for future work.

3. There are several editorial bugs, punctuation errors and also typos in the work. Before the publication all of them should be improve throughout. For example:

   - to many or missing 'space', the bold font in text line 45, 49. Done.

- The short of for example is ‘e.g.’ not ‘*e.gr*.:’. Done.

- The end of sentence should be end by dot not semicolon (line 69). Done.

- Each of band absorption band should have a unit (cm^{-1}), please correct at line 80. Done.

- At line 104 ‘weren’t’ should be written “were not”. Done.

- The molecular orbital ‘dx2-y2’ please use index (line 114). At lines 116, 118, 119 please use upper index. Done.

- The captions of figures and tables should have the same formatting throughout the work, please standardize it. Done.

- Please complete the valence or the degree of oxidation in the symbols 'Mg'. I also recommend re-releasing the title in this respect. Done.

- Line 180 to many dots.
Dear referee: we have consulted our X-Ray technician for this issue. He recommends leaving the file without modification for it is the untouched archive from the instrument. Your point will be further considered in future submissions.

4. In Material and methods please indicate the origin and possible purification of all chemical reagents used in the tests. Done.

All chemicals were available commercially and purchased from Sigma-Aldrich. The solvents were purified by conventional methods prior to use [32].

5. Please remove the section which is not mandatory and the end of manuscript ‘Patent’. Done

6. In Supplementary Information Figure S52-54 are low quality and should be loaded with better resolution. Also the UV-Vis spectra (Figure S58-66) have to be in better resolution and without the handmade note.

Done

7. Moreover there is a one more point which could positively influence the reception of work and make it more valuable. It is not require, but only recommended to expand the paper, namely adding graphical abstract.

The graphical abstract was uploaded when the manuscript was submitted.

Submission Date

28 October 2022

Date of this review

08 Nov 2022 20:54:12

Dear referee 2: We appreciate your valuable suggestions. Please do not hesitate to comment with us any further change that may improves our manuscript. All the best!