Review of: "Synthesis and Antibacterial Screening of Cefradine Schiff Bases and Their Metal Salts"

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Potential competing interests: No potential competing interests to declare.

The presented work, '

Synthesis and Antibacterial Screening of Cefradine Schiff Bases and Their Metal Salts'

has scientific potential but has to be significantly improved.

Some komments:

'Schiff bases are biologically active and exhibit antiviral, anti-malarial, antipyretic, anti-proliferative, anticonvulsant, antifungal, anticancer, anti-hypertensive, anti-inflammatory, antibacterial, and hypnotic activities'—does this apply to all Schiff bases? This wording is too general, as if the mere presence of the C=N group determined only the above-mentioned properties. The citations presented concern specific classes of compounds.
It could be useful to see photos of the synthesized crystals of cefradine Schiff bases.

Most of the article space is filled with NMR peak descriptions. It could be interesting to see the spectra in the supplementary materials. The same concerns IR spectra. In the case of IR spectra, a comparison between them could be very valuable.

Experimental should be replaced with materials and methods with a better description of the source of the used compounds.
The presented data from spectra should be part of the'results'.
'Antibacterial activities'—this part should be shifted to'materials and methods'.
The 'chemistry' part is not convincing. If some groups are not observed in IR, it means they are not there, but it is not evidence that you got what you wanted (it is only a possibility). For that, a full reaction path with a detailed NMR description could be convincing, but I don't see this in the paper. Check the grammar. "…absence of NH2 protons of cefradine and presence of all other relevant in their relevant ranges confirms synthesis of Schiff bases…"
Which OH band's synthesis of salts was indicated by IR spectra by the disappearance of the OH band"s vibrations and frequency?
I am not a biologist, but it could be important to compare the results to some known standards.
"All of the above-mentioned active compounds have H as R1, phenyl or phenyl with NMe2/OMe groups as R2, so their

activity might be attributed to lesser steric hindrance and increased availability of electrons at imine linkage.” This seems to be essential for this article. Why is it so laconic? Please extend this discussion.

Use Na+Ba2+ instead of Na; Ba can be cofusing. The solubility of Ca (OH)2 and Ba (OH)2 can be low. AgNO3 can be a reducing compound. The biological activity can be related to the solubility!

Structural data could be very useful in understanding biological activity.