Supplementary Information

Triply phenoxo bridged Eu(III) and Sm(III) complexes with 2,6-diformyl-4-methylphenol di(benzoylhydrazone) : Emission, EPR, antimicobacterial and cytotoxicity study on different human cell lines

Kuheli Das, Soumendra Nandi, Sudipa Mondal, Tulin Askun, Zerrin Cantürk, Pinar Celikboyun, Chiara Massera, Eugenio Garribba, Amitabha Datta,* Chittaranjan Sinha,* Takashiro Akitsu

Synthesis of 2,6-diformyl-4-methylphenol-di(benzoylhydrazone), $\text{H}_3\text{L}$
The ligand was synthesized according to literature procedure \cite{19} (Scheme 1). 4-Methylphenol in glacial acetic acid was reacted with \textit{p}-formaldehyde and hexamethylene tetraamine to synthesize 2,6-diformyl-4-methylphenol. It was then condensed with benzhydrazide in methanol to isolate 2,6-diformyl-4-methylphenol-di(benzoylhydrazone) (H\textsubscript{3}L) in good yield (80\%).

\textsuperscript{1}H NMR, 300 MHz, \textit{d}\textsubscript{6}-DMSO: 12.31 (1-OH s); 7.55 (4,6-H s); 8.7 (8,8'-H s); 12.13 (10,10'-NH s); 7.93 (13,13’,17,17’-H d, J = 7.2 ); 7.59 (15,15'-H e); 7.51 (14,14',16,16'-H e); 2.31(5-CH\textsubscript{3} s) (s, singlet; d, doublet; e, multiplet).
Step 1:

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\text{Hexamine + Paraformaldehyde} \xrightarrow{\text{Conc. } \text{H}_2\text{SO}_4, \text{ Reflux}} \]

Step 2:

\[
\text{Reflex}
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\begin{align*}
\text{Step 1:} & \\
\text{Step 2:}
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