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ISOLATION OF ANTHRAQUINONES FROM *Morinda citrifolia* AND SEMI-SYNTHESIS OF ITS METAL COMPLEXES

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ABSTRACT

Extensive study on the isolation has been carried out on the stem bark of *Morinda citrifolia.* The synthesis of metal complexes were carried out using one pot reaction method. This study focused on the isolation of two anthraquinones, nordamnacanthal **(10)** and damnacanthal **(11)** and four synthesized metal complexes, Cu-nordamnacanthal complex **(163)**, Fe-nordamnacanthal complex (**164)**, Cu-damnacanthal complex **(165)** and Zn-damnacanthal complex **(166).**The ligands were characterized using spectroscopic method sucah as NMR, MS, FTIR and UV-Vis. The spectroscopy data of the two ligands obtained were compared with the previous literature. The synthesized metal complexes obtained were characterized using CHNS elemental analysis, FTIR and UV-Vis. From the analysis results, the geometry of the Cu-nordamnacanthal was confirmed as square planar while geometry for Fe-nordamnacanthal, Cu-damnacanthal and Zn-damnacanthal were confirmed as octahedral. The crude extracts of *Morinda citrifolia,* the isolated anthraquinones and their metal complexes were then tested for their antimicrobial and antioxidant activities. Antimicrobial activity was carried out using five different strains of bacteria namely *Escherichia coli, Salmonella pneumoniae, Pseudomonas aeruginosa, Proteus vulgaris* and *Klebsiella pneumoniae*. From the antimicrobial and antioxidant activities evaluation results, the synthesized metal complexes showed better antimicrobial activity and more potent antioxidant activity compared to the crude extracts and isolated anthraquinones, nordamnacanthal **(10)** and damnacanthal **(11).**

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