^{1}HNMR, FTIR and Mass spectrometric Analysis of Biopotent Dimedon Azo-Derivatives and Their Metal Complexes

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The expansion of novel and extra operative antibiotic proxies are essential for human health. Here, we have produced a new series of azo-compounds including, *(5,5-dimethyl-2-[(E)-phenyldiazenyl]cyclohexane-1,3-dione* (**DMPDCDO**), *5,5-dimethyl2-[(E)-(2-methylphenyl) diazenyl]-5,5-dimethylcyclohexane-1,3-dione* (**DMMPDCDO**), *5,5-dimethyl-2-[(E)-(4-ethylphenyl) diazenyl]cyclohexane- 1,3-dione* (**DMEPDCDO**), and *5,5-dimetyl-2-[(E)-(4- methylphenyl) diazenyl]-5,5-dimethylcyclohexane-1,3-dione* (**DMPDACDO**) were successfully synthesized via diazo-coupling of substituted amine's diazonium salts with dimedone at 0-5℃. Then azo compounds were further utilized for the synthesis of metals complexes with Zn^{2+}, Mn^{2+}, Ni^{2+} , Co^{2+}etc . The purification of the synthesized ligands along with the metal complexes was known by TLC technique. Moreover, ^{1}HNMR, FTIR, and Mass spectrometric systems were successfully utilized to confirm the synthesis of ligands as well as metal complexes. The FTIR results distinctly confirmed synthesis by a characteristic (distinct) peak of (-N=N-) in 1500-1400 cm^{-1} range, while the C=O peak in 1740-1530 cm^{-1} range. The metal complex syntheses were confirmed by lowering the carbonyl functional group frequency owing to the metal carbonyl interaction. The ^{1}HNMR results confirmed synthesis by vanishing -NH group peak at chemical shift value in of 4.05-4.07 ppm range. The Mass spectrometric study confirmed the synthesis due the presence of clear molecular ion peaks, base peaks and

the ion fragments pattern. Biological activities were also performed. Results have shown that synthesized compounds and their metal complexes are good to moderate antibacterial and antifungal agents against *americane* and *fluconazole* respectively.