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Synthesis, characterization, antioxidant and anticancer evaluation of some novel flavone-4-oximes

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A series of novel flavone-4-oximes [1] were synthesized by the oximation of substituted flavones. The synthesized compounds were characterized by various spectroscopic methods including IR, MASS, NMR spectroscopy. Out of the 14 test compounds screened for their antioxidant activity, compounds such as JGS-VI (a N,N dimethyl benzaldehyde derivative) and JGS-VII (a 3,4 dimethoxy benzaldehyde derivative) exhibited antioxidant activity comparable to that of ascorbic acid with its IC₅₀ value at 30.01 Mm as standard following DPPH· method. Compounds such as JGS-II (a Para fluoro benzaldehyde derivative), JGS-IV (a Para methyl benzaldehyde derivative) and JGS-V (a thiophene -2-aldehyde derivative) exhibited anti-oxidant activity among all the test compounds screened against ABTS [2] using Quercetin with its IC₅₀ value at 50.24 Mm. However, none of them showed any significant scavenging activity against nitric oxide scavenging assay in the concentration range of 200 µM–25 Mm.

Further, anti-cancer potency for all the test compounds were evaluated by MTT [3] assay against two different cell line such as MCF-7 and Hep-G2. Compounds such as JGS-I(a para chloro

benzaldehyde derivative), JGS-II (a Para fluoro benzaldehyde derivative), JGS-IV (a Para methyl benzaldehyde derivative), JGS-V (a thiophene -2-aldehyde derivative), JGS-VI (a N,N dimethyl benzaldehyde derivative) and JGS-IX (a 3,4 dichloro benzaldehyde derivative) exhibited activity better than the rest of the other test compounds tested against MCF-7 cell lines and were compared with Doxorubicin with its IC₅₀ value at 4.2 µM. Compounds such as JGS-VI, JGS-VII, JGS-VIII (a Para bromo benzaldehyde derivative) and JGS-IX exhibited anti-cancer activity better than other test compounds tested against Hep-G2 cell lines. The standard used was Doxorubicin. Thus, a few of the synthesized test compounds could become promising anti-cancer agents.

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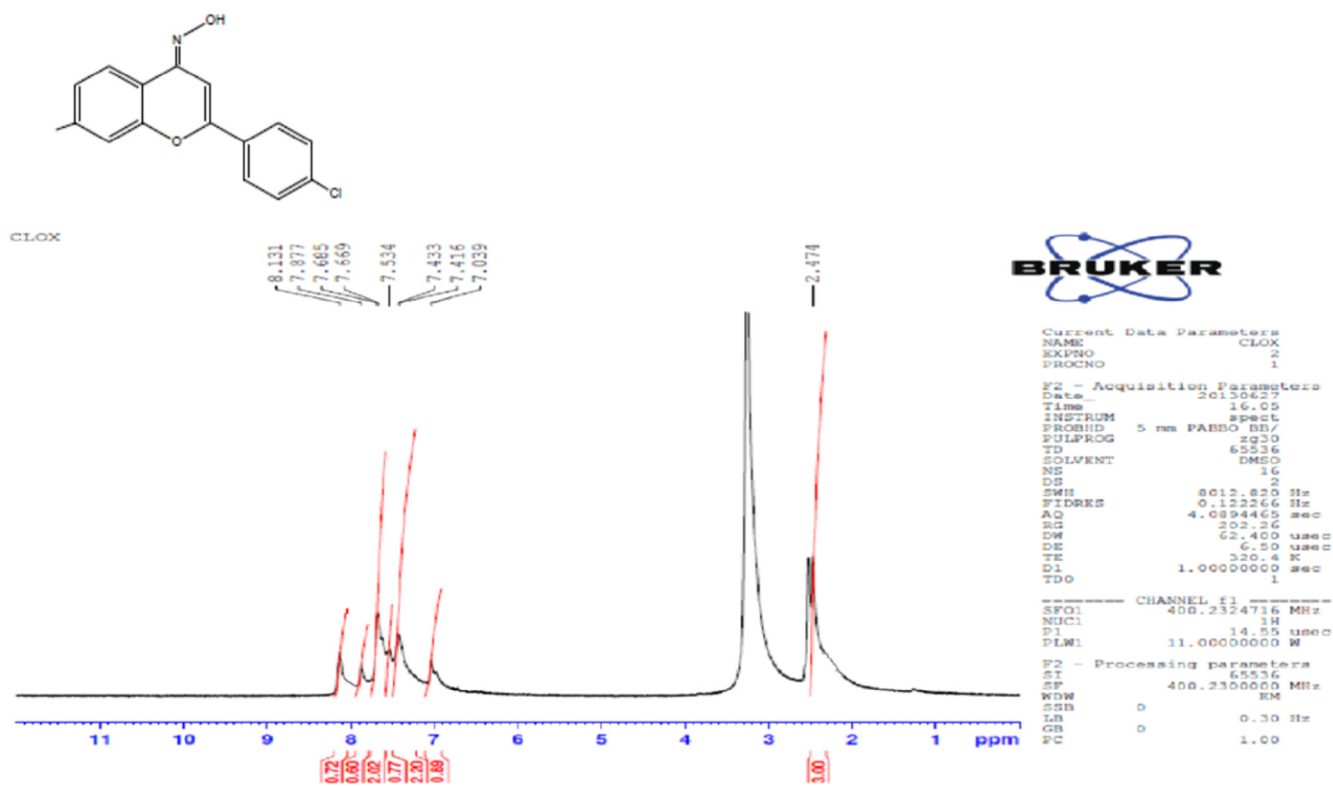


Fig. 1-NMR spectra of target compound JGS XIII.

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