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Synthesis, *In Vitro* Antioxidant and Antimicrobial Evaluation of 3-Hydroxy Chromone Derivatives

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Abstract : 3-hydroxy chromones were synthesized by Algar Flynn Oyamada method which includes oxidative cyclization of 2-hydroxy chalcones in basic solution by hydrogen peroxide. Chalcones required were synthesized by Claisen-Schmidt condensation of substituted 2-hydroxy acetophenones with substituted aromatic aldehydes using PEG-400 as recyclable solvent. The synthesized compounds were evaluated for *in vitro* antioxidant activity by 1,1-diphenyl-2-pycrylhydrazyl radical scavenging assay. Additionally, these compounds were also screened for *in vitro* antibacterial and antifungal activity by agar cup method and Poison plate method, respectively. The structures of the synthesized compounds were characterized by IR, ^{1}H NMR and Mass spectra. The antioxidant activity data revealed that all the synthesized derivatives of chromone showed greater antioxidant activity due to presence of phenolic hydroxyl group, 4-oxo group and 2,3-double bond. Further the activity increased with introduction of more phenolic hydroxyl group and adjacent methoxy group in the structure. The antimicrobial activity data showed that the compounds exhibited good antibacterial and antifungal activity which is attributed to the presence of phenolic hydroxyl group and 4-oxo group in the structure.

Keywords : Chromone, Chalcone, Claisen-Schmidt condensation, Algar Flynn Oyamada method, Antioxidant, Antibacterial, Antifungal.

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