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Microwave assisted synthesis and evaluation of antimalarial potencies of some 8-quinoline enones

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Abstract. Ten new chalcones of 8-quinoline were efficiently synthesized via a solvent-free cross-aldol condensation between 8-quinoline carbaldehyde and various substituted aryl ketones, catalyzed by nano fly-ash:H₃PO₄ under microwave irradiation. This method afforded over 82 % yield efficiency. The resulting 8-quinoline enones were characterized through their physicochemical properties, analytical, and spectroscopic techniques. The role of the catalyst and solvents in the reaction was examined, revealing the optimal catalyst amount to be 0.25 g for 0.01 mol of aldehydes. Additionally, the *in vitro* antimalarial activity of the synthetic compounds against the intra-erythrocytic development of *Plasmodium falciparum* was evaluated. The halo-substituted 8-quinoline enones were extremely dynamic in contraction with the antimalarial microbes among the other enones.

Keywords: 8-quinoline enones; nano fly-ash:H₃PO₄; crossed-aldol condensation; microwave irradiation; IR spectra; NMR spectra; anti-malarial activity.

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