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Green Synthesis, Characterization and Biological Evaluation of New Pyrazino Pyrido Quinolone Derivatives under Catalyst free Conditions

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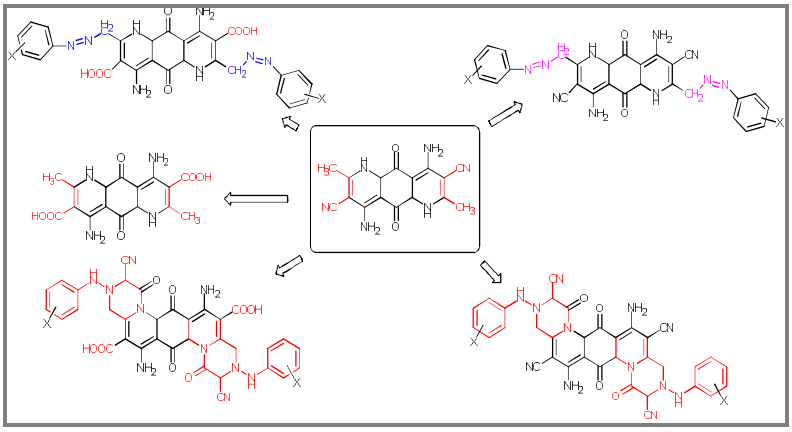
ABSTRACT

*A series of six pyrazino pyrido quinolone derivatives (**3a-c**,**6a-c**) was synthesized by treating azodyes **(2a-c)** (4,9-diamino-5,10-dioxo-2,7-bis((phenyl,4-hydroxy phenyl,4-chlorophenyl)diazenyl)methyl)-1,5,5a,6,10,10a-hexahydropyrido[2,3-g]quinoline-3,8-dicarbonitrile) and **(5a-c)** (4,9-diamino-5,10-dioxo-2,7-bis-(phenyl,4-hydroxyphenyl,4-chlorophenyl)diazenyl)methyl)-1,5,5a,6,10,10a-hexahydro-pyrido [2,3-g]quinoline-3,8-dicarboxylic acid) with ethylcyanoacetate and ethanol in microwave oven. The structural identification of these products was described on the basis of spectral data (IR, ^{1}H NMR, ^{13}C NMR and MS) and elemental analyses. The results revealed that the proposed simple and green procedure gave the best yields (80-90%) over a very short time (25-38 s). The anti-bacterial activities of the newly synthesized compounds were evaluated in vitro against species of bacteria, including gram-positive and gram-negative. Furthermore, their antifungal activities were also tested against Aspergillus flavus and Candida albicans. The results showed that .among the synthesized compounds; compound **(3a)** exhibited the highest antibacterial and antifungal activities.*

Graphical Abstract



Keywords: Green Chemistry, Microwave, Quinolones, Catalyst-free conditions, Biological activity.