



Novel Heterocyclic Quinone Photosensitizing Dyes, their biological and spectral studies

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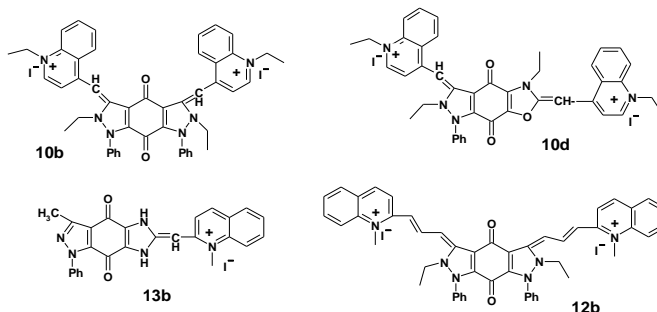
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ABSTRACT

A novel symmetrical/ unsymmetrical bis-mono (and/or bis-tri)methine photosensitizing dyes 10a-d and 12a-d were prepared from the new key intermediate compound derivatives 7a and 7b namely as 3,5-Dimethyl-1,7-diphenylpyrazolo[4,3-f]indazole-4,8(1H,7H)-dione and 3,6-dimethyl-1-phenyl-1H-oxazolo[4,5-f]indazole-4,8-dione respectively (Schemes 1,2,3). Also, new unsymmetrical of different mono methine 13a-c, 14a-c and bis-monomethine 15 cyanine dyes were prepared from the new other key intermediate compound 7c namely as 3-methyl-1-phenylimidazo [4,5-f]indazole-4,6,8(1H,5H,7H)-trione (Scheme 1, 4). Structural determination of the new compounds was carried out by elemental analysis, IR, ¹H NMR, mass spectral data. The structure-photosensitization relationship of such dyes was discussed on the basis of their spectral behavior as criteria of photosensitizing effect. Finally, the antimicrobial activity of some selected novel dyes was investigated in vitro using a wide spectrum of microbial strains.

Graphical Abstract:



Highlights

- Synthesis and characterization of novel cyanine dyes.
- Antimicrobial activity with highest potency towards the microorganism *Halobiforma haloterrestris*

Keywords: heterocyclic quinone, bis-monomethine, bis-trimethine, antimicrobial activity.