CHAPTER-X

Conclusion
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The compound encompassing furan nucleus are widely distributed in naturally occurring compounds. Many of such compounds possess wide range of pharmacological activity. However one of the compound isolated possess tetrahydro furan ring in its molecular structure. Moreover our research group is involved in the synthesis of naphthofuran derivatives. Hence we carried out the biological and pharmacological activity of both synthetic and crude leaves extracts of the *Tabernaemontana coronaria*.

The results obtained from the investigation on medicinal plant and naphthofuran derivatives, mentioned below.

1. All the extracts showed considerable antimicrobial activity against the organisms. The ethanol extracts of *Tabernaemontana coronaria* leaves exhibited considerable zone of inhibition against *Escherichia coli, Staphylococcus aureus, Aspergillus niger* and *Candida albicans* at 20% concentration.

2. Leaves extracts of *Tabernaemontana coronaria* exhibited potent anthelmintic activity. Ethanol extract was more potent compared to standard albendazole.

3. The chloroform and ethanol leaves extracts of *Tabernaemontana coronaria* showed considerable antidiabetic activity as compared with that of standard glibenclamed. The ethanol extract of *Tabernaemontana coronaria* leaves exhibited significant DPPH scavenging activity.

4. Diosogenin and 2-hydroxy-4-methoxy benzoic acid were isolated from ethanol extracts of leaves of *Tabernaemontana coronaria*.

5. The structures of newly synthesized compounds have been well established by IR and $^1$H NMR data. To provide additional evidence for the assigned structures mass spectra and $^{13}$C NMR spectra of few selected compounds are recorded.
6. Investigation of antimicrobial activity showed that there is no specific result on the activity either by electron donating or electron withdrawing groups. However it is observed in general that electron withdrawing group enhanced the activity to a certain extent, especially nitro group.

7. All the tested compounds were considered to be equipotent since the values obtained were very close to each other. The compounds (2-[5-(naphtho[2,1-
b]furan-2-yl)-1,3,4-oxadiazol-2-yl]hydrazinylidene)methyl]phenol 7a, 2-(naphtho [2,1-b]furan-2-yl)-5-[(2Z)-2-(4-nitrobenzylidene)hydrazinyl]-1,3,4-oxadiazole 7e, N-(1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5a and N-(1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)-5-nitronaphtho[2,1-b]furan-2-carboxamide 5d exhibited potent antibacterial activity against Bacillus subtilis, Staphylococcus aureus and Escherichia coli. The compounds 2-benzylidenehydrazinyl]-5-(naphtho[2,1-b]furan-2-yl)-1,3,4-oxadiazole 7d, 2-(3-chlorobenzylidene)hydrazinyl]-5-(naphtho[2,1-b]furan-2-yl)-1,3,4-oxadiazole 7f, N-(4,5,6,7-tetrabromo-1,3-dioxo-1,3-dihydro-2H-isooindol-2-yl)naphtho[2,1-
8. The anthelmintic activity of the various naphthofuran derivatives may be attributed to similar type of action. Among the tested compounds, compounds 2-(naphtho[2,1-b]furan-2-yl)-5-[(2Z)-2-(3-nitrobenzylidene)hydrazinyl]-1,3,4-oxadiazole 4a, 2-[(2Z)-2-benzylidenehydrazinyl]-5-(naphtho[2,1-b]furan-2-yl)-1,3,4-oxadiazole 4b, 5-nitro-N-(4,5,6,7-tetrachloro-1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5d and 5-nitro-N-(4,5,6,7-tetrabromo-1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5e exhibited considerable anthelmintic activity as compared to standard drug.

9. The compounds 2-(4-methoxybenzylidene)hydrazinyl]-5-(naphtho[2,1-b]furan-2-yl)-1,3,4-oxadiazole 7b, 2-(naphtho[2,1-b]furan-2-yl)-5-[(2Z)-2-(3-nitrobenzylidene)hydrazinyl]-1,3,4-oxadiazole 7c, 2-(3-chlorobenzylidene)hydrazinyl]-5-(naphtho[2,1-b]furan-2-yl)-1,3,4-oxadiazole 7f, N-(1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5a, 5-nitro-N-(4,5,6,7-tetrachloro-1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5e and 5-nitro-N-(4,5,6,7-tetrabromo-1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5f showed considerable DPPH scavenging activity.

10. Among the selected naphthofuran compounds N-(2,5-dioxopyrrolidin-1-yl)naphtho[2,1-b]furan-2-carboxamide 4a, N-(2,5-dioxopyrrolidin-1-yl)-5-nitronaphtho[2,1-b]furan-2-carboxamide 4b and N-(4,5,6,7-tetrabromo-1,3-dioxo-1,3-dihydro-2H-isoindol-2-yl)naphtho[2,1-b]furan-2-carboxamide 5c have shown significant decrease in blood glucose level.