CONCLUSIONS
• Considering the scope of benzoxazole derivatives in drug discovery and their importance in medicinal field, the present investigation is focused on the synthesis and pharmacological investigation of target molecules to the best of our knowledge. Some new routes for the synthesis of benzoxazole derivatives have been devised and the target molecules have been screened for selected biological activities. Few of the synthesized molecules exhibited the potent biological and pharmacological activities.

• The few dichlorobenzoxazole derivatives containing fused heterocyclic compounds like pyrazoles, triazoles, tetrazoles, pyrazole carbaldehyde derivatives and its respective Schiff bases, fused benzoxazoles with naphthalene moiety and fused heterocycles contained benzoxazole and quinoline nucleus have been synthesized. The target molecules were purified, characterized and confirmed by IR, $^1$H NMR, $^{13}$C NMR and mass spectral analysis.

• The compounds 6,8-dichloro[1,2,4]triazolo[3,4-b][1,3]benzoxazole 5, 6,8-dichloro-3-methyl[1,2,4]triazolo[3,4-b][1,3]benzoxazole 6, 5,7-dichlorotetrazolo[5,1-b][1,3]benzoxazole 7 and 5-amino-2-(5,7-dichloro-1,3-benzoxazol-2-yl)-2,4-dihydro-3H-pyrazol-3-one 9 showed potent antibacterial activity. The compounds 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-hydroxyphenyl)-1H-pyrazole-4-carbaldehyde 15b, 3-(4-bromophenyl)-1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazole-4-carbaldehyde 15d and 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(3,4-dichlorophenyl)-1H-pyrazole-4-carbaldehyde 15e exhibited potent antimicrobial activity. Whereas the compounds 4-[4-[4-(2-chlorophenyl)imino]methyl-1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazol-3-yl]phenol 16b, 2-chloro-N-[1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(3,4-dichloro phenyl)-1H-pyrazol-4-yl]methyleneanilne 16e and 2-chloro-N-[1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-methoxyphenyl)-1H-pyrazol-4-yl]methyleneaniline 16f showed moderate antibacterial activity when compared with standard drug. The compound 5-chloro-2-(6-methoxy-2-naphthyl)-1,3-benzoxazole 19e showed potent antibacterial and antifungal activity. The compound 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazolo[3,4-b]quinoline 23a showed moderate antibacterial activity.
Conclusions

- The compounds 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-hydroxyphenyl)-1H-pyrazole-4-carbaldehyde \(15b\) and 3-(4-bromophenyl)-1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazole-4-carbaldehyde \(15d\) exhibited potent analgesic activity.

- The compounds 6,8-dichloro-3-methyl[1,2,4]triazolo[3,4-b][1,3]benzoxazole \(6\), 2-(5,7-dichloro-1,3-benzoxazol-2-yl)-5-methyl-2,4-dihydro-3\(H\)-pyrazol-3-one \(8\), 5-amino-2-(5,7-dichloro-1,3-benzoxazol-2-yl)-2,4-dihydro-3\(H\)-pyrazol-3-one \(9\), 5-chloro-2-(6-methoxy-2-naphthyl)-1,3-benzoxazole \(19c\) and 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazolo[3,4-b]quinoline \(23a\) showed considerable DPPH scavenging activity, whereas the compounds 6,8-dichloro[1,2,4]triazolo[3,4-b][1,3]benzoxazole \(5\), 5,7-dichlorotetrazolo [5,1-b][1,3]benzoxazole \(7\), 2-(5,7-dichloro-1,3-benzoxazol-2-yl)-5-methyl-2,4-dihydro-3\(H\)-pyrazol-3-one \(8\), 7,9-dichloro-2\(H\)-[1,2,4]triazino[3,4-b][1,3]benzoxazole-3,4-dione \(12\) and 1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazolo[3,4-b]quinoline \(23a\) showed potent free radical reducing activity. The compounds 2-chloro-N-[1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-methoxyphenyl)-1H-pyrazol-4-yl]methylaniline \(16a\), 2-chloro-N-[1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-methylphenyl)-1H-pyrazol-4-yl]methylaniline \(16c\) and 3-chloro-N-[1-(5,7-dichloro-1,3-benzoxazol-2-yl)-3-(4-methylphenyl)-1H-pyrazol-4-yl]methylaniline \(16f\) exhibited moderate radical reducing activity.

- The compound 4-[4-[(2-chlorophenyl)imino]methyl-1-(5,7-dichloro-1,3-benzoxazol-2-yl)-1H-pyrazol-3-yl]phenol \(16b\) exhibited moderate larvicidal activity but the compound 5-chloro-2-(6-methoxy-2-naphthyl)-1,3-benzoxazole \(19c\) shows potent mortality. The compounds 2-(6-methoxy-2-naphthyl)-1,3-benzoxazole \(19a\), 2-(6-methoxy-2-naphthyl)-5-methyl-1,3-benzoxazole \(19b\) and 5-chloro-2-(6-methoxy-2-naphthyl)-1,3-benzoxazole \(19e\) exhibited promising anti-inflammatory activity. The compound \(19c\) also emerged as anticancer agent against HT-29 -Human colorectal adenocarcinoma at minimum concentration.
Conclusions

- The compounds 5,7-dichlorotetrazolo[5,1-b][1,3]benzoxazole 7 and 5-amino-2-(5,7-dichloro-1,3-benzoxazol-2-yl)-2,4-dihydro-3H-pyrazol-3-one 9 exhibited potent cytotoxic activity. The compounds 5-amino-2-(5,7-dichloro-1,3-benzoxazol-2-yl)-2,4-dihydro-3H-pyrazol-3-one 9, 5,7-dichloro-2-(3,5-dimethyl-1H-pyrazol-1-yl)-1,3-benzoxazole 10, 6,8-dichloro[1,2,4]triazolo[3,4-b][1,3]benzoxazol-3(2H)-one 11 and 5,9-dichloro-2H-[1,2,4]triazino[3,4-b][1,3]benzoxazole-3,4-dione 12 exhibited moderate pancreatic lipase inhibitory activity.

- In molecular docking study, the compound 6b exhibited minimum binding energy. The compounds with minimum binding energy are responsible for more active antimicrobial agent. The best dock conformation is one; with least binding energy has the highest affinity.