SUMMARY

The present investigation has been undertaken to find out the antibacterial and antifungal activities of the selected Prosbranch gastropods *Babylonia zeylanica*, *Purpura persica* and *Chicoreus virgineus*. Antibacterial activity was tested against 10 bacterial pathogens in total of three molluscan species from the whole body tissue. The growth of all the tested bacteria inhibited by the crude extract of *B. zeylanica*, and the inhibitory range varied from 6-15 mm. Benzene: methanol (F4) fraction and Methanol (F5) fraction were considered to be the most potent fraction in column as well as MCH. *A. hydrophilia*, *E. coli* and *S. typhi* were the most susceptible pathogens in concern with the *B. zeylanica* extract.

Crude methanol extract of *C. virgineus* inhibitory zone varied from 3-7 mm in the treated pathogens. Hexane: chloroform (F1) and Chloroform (F2) fractions were the most potent fractions and exhibited significant effect against *S. flexneri*, *S. typhi* and *V. cholerae* Classical.

The range of inhibitory activity of crude methanol extract of *P. persica* varied from 2-7 mm, Hexane: chloroform (F1), chloroform(F2), Benzene (F3) and methanol (F5) fractions were found to be the most potent and temporary fabulous in inhibiting the growth of *S. typhi*, *P. aerugenosa*, *S. flexneri* and *B. cereus*.

Among the tested prosobranch gastropod *P. persica* and *C. virgineus* were exhibiting maximum antibacterial activity.

Antifungal activity was tested against nine fungal species in the crude methanol as well as silica gel column fractioned extracts of the entire three prosobranch gastropod test animal.
Crude extract of *B. zeylanica* the inhibitory zone range varied from 3-6 mm and the highest inhibition zone was developed against *A. terreus* (F4) and *F. moniliforme* (F5). The benzene: methanol and methanol (F4) fractions have showed very little activity and the highest inhibition zone was developed against *A. terreus* (F4) and *F. moniliforme* (F5) respectively.

*P. persica* methanol crude extract inhibition zone varied from 2-6 mm. The chloroform (F2) fraction showed very high inhibitory activity amongst all the tested fungi. Hexane: chloroform (F1) and methanol (F5) fractions were also equally inhibited most of the fungal growth in column as well as MIC.

Crude extract of *C. virgineus* inhibitory range varied from 1 - 7 mm. Among the silica gel fraction Hexane: chloroform (F1) and chloroform (F2) fractions were found to be the most potent fractions and showed significant activity against *P. citrinum*, *Trichoderma* and *F. moniliforme*.

Among the tested prosobranch for antifungal activity *P. persica* was found to be a candidate species in synthesizing novel drug for *P. citrinum*, *Trichoderma* sp. and *F. moniliforme* fungal pathogen.

Elemental analyses of the most patent fractions of the test animals were carried out to find out the percentage of Carbon, Hydrogen and nitrogen by CHN analyzer.

From all the potent fractions the FT-IR, H’NMR studies revealed the presence of aliphatic, methyl, aromatic, alkane, alkene, ester, halogen, amine, nitrogen, and sulphur compounds. To confirm the presence of already established radicals from
FT-IR and H’NMR silica gel purified extracts were analyzed by GC-MS for structural elucidation and the chemical radicals were interpreted.

Benzene: methanol (F4) of the *B. zeylanica* showed five compounds with antimicrobial quantity with a maximum percentage of a terpene compound α– D- Manno furonoside farnesyl with 18.12%. Methanol (F5) fraction revealed five antibacterial compounds with a maximum percentage of 2, 2- dimethylene-1 (3, 5- dihydroxy-1-pentenyl) cyclo hexane-1-perhydrol (5.78%).

Only two antimicrobial compounds were confirmed from hexane: chloroform extract of *P. persica* with the maximum percentage of 2-nonadecanone 2, 4- dinitro phenyl hydrazine. In the chloroform fraction (F2), a steroid compound namely Cholest-5-en-3-ol (3α) carbano chloridate (72.31%) was obtained with higher concentration.

From benzene (F3) fraction one phenol and three plasticizer antimicrobial compounds were identified. 1, 2-Benzene dicarboxylic acid, diisoocyl ester was found to be in maximum percentage. Methanol (F5) fraction though revealed three antimicrobial compounds 2, 7, dimethyl (5.57%) showed a peak in percentage.

Five antimicrobial compounds with the dominance of antimicrobial compounds such as two alkaloids and a steroid were encountered from Hexane: chloroform (F1) fraction of *C. virgineus*.

The chloroform (F2) fraction revealed four antimicrobial compounds such as fluro compounds (2nos) Diethyl phthalate a plasticizer compound (1no) which has recorded maximum (14.74%).
Various characterized compounds were confirmed in accordance with the merging of retention time shown by the standard retention time in HPLC. Analysis of F4 fraction of *B. zeylanica* by HPLC revealed the presence of Diethyl phthalate and oleic acid, F1 fraction of *C. virgineus* confirmed the presence of oleic acid and diethyl phthalate and the isolated compounds from F3 fraction of *P. persica* were completely identical to that of standard azulene, diethyl phthalate, oleic acid and eugenol.

The presence of alkaloids, fluorides, sulphur, chloride, plasticizer, sterols, polypeptides, ethanol, aldehyde, nitrogen, terpenes, aromatic, phenols, and fatty acid derivatives could be responsible for the antibacterial activity of the present study. As the tested animals exhibited maximum antimicrobial activity, to confirm the antimicrobial activity the extracts of the test animals were subjected to analgesic, antipyretic and anti-inflammatory activity with model animal, albino rats.

Among the tested drugs *C. virgineus* and *P. persica* acted a very good pain reliever compared to the control at 200mg/kg of the tested animal.

Though significant (P<0.05) reduction in temperature was observed in all the three test animal drug treatment but maximum reduction in temperature was noted in *C. virgineus*.

Significant (P<0.001) paw thickness were observed in all the tested drugs at 100mg and 200mg/kg doses but *B. zeylanica’s* drug reduced maximum percentage of reduction at 200mg/kg.

The crude and the column purified extract from *B. zeylanica, P. persica* and *C. virgineus* exhibited potential antibacterial and antifungal activity. The antifungal activity of *P. persica* is better than *C. virgineus* and very mild antifungal activity was
exhibited by *B. zeylanica*. All the three tested animals revealed to be the suitable future candidates for obtaining bioactive compounds for pharmacological and biomedical research against antibacterial, antifungal, anti-inflammatory, anti-pyretic and analgesic activities. But care should be taken by not disturbing the diversity of the marine environment before collecting animals for future research. The better option may be mass culturing the suitable organism in laboratory or from natural environment by aqua ranging to minimize the possible damage to the diversity and also to get drugs for human need.