SUMMARY

Present study was conducted to explore the abundance and diversity of copepods from fresh water bodies of District Gujranwala Punjab, Pakistan. Sampling was done on monthly basis for the period of one year from October 2011 to September 2012. Physico-chemical parameters of waters such as temperature, pH, dissolved oxygen, conductivity, total dissolved solids, total hardness, transparency and turbidity were determined and their relation with copepod population was also noted. Copepods showed a positive correlation with temperature, pH, conductivity, total, dissolved solids, total hardness and turbidity except dissolved oxygen and transparency. Analysis of variance of all parameters showed significant difference ($p<0.05$) except pH.

Copepod samples were also taken monthly with plankton net having mesh size 70 µm. After isolation copepods were counted in a Sedgwick rafter chamber or cell at 60-100x magnification using inverted Olympus microscope. Photographs were taken with microscope LAICA 50/50 with 5 megapixel camera fitted on it.

The shape of body, segments of antennae, urosome and caudal rami were observed for identification of copepods up to species level. Total 28 copepod species belonging to 13 genera and 3 families were identified. This study is the first attempt to analyze the copepod fauna of District Gujranwala Punjab, Pakistan while 17 species were newly reported from Pakistan.

During study density and diversity of copepods remained high in summer and low in winter. *Mesocyclops* was the dominant genus and *Mesocyclops edax* was the dominant species at st.1, 2 and 4 while genus *Eucyclops* and *Eucyclops agilis* species was dominant at st.3.

ANOVA of copepods of four study stations showed significant results ($p<0.05$).

Cluster analysis divided the copepod data into groups or clusters on the basis of their abundance. Species present in one cluster were more similar in their abundance as compared to species of other clusters. Principal component analysis showed correlation among the species and sampling months.