CONCLUSIONS

In the present work, the relative abundance study of fish diversity from the *Hel* river of Kokrajhar, Assam was conducted along with the evaluation of species richness and species evenness. The abundance study of the fish species was carried out from August 2014 to July 2015. The results show that a total of 181 species and 1313 individuals could be found from the *Hel* river. The relative abundance (%) study showed that the fish species belonging to the *Cyprinidae* family were found to be the highest in the *Hel* river. The highest relative abundance (%) occurrence of the fish species was *Barilius bendelisis* (15.31 %) followed by *Garra gotyla* (14.09 %) and *Barilius barna* (13.78 %). The study reveals that the selected *Hel* river is rich in fish species belonging to the family *Cyprinidae* along with other varying numbers of species, and this report can be used as a reference source for future research work.

A total of nine fish species of the *Cyprinidae* family were selected based on the high relative abundance result. The nine fish species were evaluated for nutritional compositions and found to be good sources of fats, proteins, high nutritive values and minerals. Hence, consumption of these species can be an alternative source of nutrients and can be included as a healthy human diet.

In this study, fatty acid compositions were investigated. The fatty acid compositions ranged from 51.20–89.47 % of SFAs, 0.27–19.68 % of MUFAs and 1.75–30.75 % of PUFAs. EPA and DHA varied respectively from 0.54–22.30 % and 1.26–18.85 %. The fish species are found to be rich in ω-3 fatty acids such as EPA and DHA. Hence, the fish species of this study have the potentials to be served as natural dietary supplements for ω-3 fatty acids and its consumption can fulfil malnutrition problems and can reduce the risk of various health diseases.

In the study amino acid compositions were also determined. The TEAA and other amino acids were found to vary among the nine fish species. The highest amount of TEAA was detected in *C. chagunio* (43.88 %) followed by *L. pangusia* (42.79 %), and the lowest TEAA content was observed in *G. gotyla* (26.45 %). Valine (0.82 % to 10.35 %), threonine (0.41 % to 7.34 %) and lysine (0.55 % to 10.52 %) were the three EAA that were detected in all the nine fishes in varying amounts. Other EAAs like histidine, methionine, phenylalanine, isoleucine, etc. were also detected in some of the fish species in varying quantities. Therefore,

the nine fish species of this study have good sources of both EAA and NEAA, and these could be suggested for the natural supplementation of EAA for proper maintenance and the growth of human health.

In this study, the nine fish species exhibited varying concentrations of lipid components. The vitamin A content found in the fish species varied from 15.85 to 1287.0 µg/100 g and the vitamin D content was found in the range of 45.0–593.83 µg/100 g. The fish species contain good sources of vitamins and lipid components, and consumption of these fishes can provide good nutrition for human health. The lipid components determined from the nine fish species collected from the *Hel* river will be a well-documented record for future reference work.