

SUMMARY

The fish-origin cell line as a research material is still limited. The establishment of cell line is important for several studies such as toxicology, carcinogenesis, cellular physiology and genetic regulation and expression. In culturing the cells, *in vitro* environment such as sera, play important role. The supplementation of culture media with the combination of fetal bovine serum (FBS) and fish serum (FS) were tested. The objective of this study were to evaluate the effects of different type of sera on the cell survival, the cells morphological characters, and to determine the most suitable media for culturing hard-lipped barb (*Osteochilus vittatus*) kidney cells after primary culture and the first subculture in different type of sera.

The research conducted experimentally using Completely Randomized Design (CRD). The different type of serum used in media, as independent variable, was provided consisting 10% FBS, 5% FBS:5% FS, and 10% FS with nine replication for each treatment while dependent variables were cell survival, cell growth rate, and cell morphological characters. The observed parameters were cell viability, cell confluency, cell density, cell population doubling level, and cell population doubling time, cell morphology, and cell proportion. Cell viability, cell density, and cell confluency were analyzed using one-way ANOVA, followed by Tukey HSD test using SPSS while population doubling level, and population doubling time, cell morphology, and cell proportion were evaluated descriptively.

Primary culture and subculture of hard-lipped barb kidney cells required 4 days to reach 100% confluence. All groups in this experiment resulted >80% cell viability indicating good condition of the cultured cells. The highest cell density, population doubling level, and population doubling time were observed in media supplemented with 10% FS in primary culture. The one-way ANOVA showed that all of the tested serum were significantly affecting on cell confluency ($p < 0.05$) and Tukey HSD test showed that the culture media containing 10% FS was significantly higher than those in culture media containing 10% FBS and 5% FBS:5% FS ($p < 0.05$). There were 12 types of cells observed in primary culture and subculture. Eight of them were comparable to the kidney cells derived from common carp (*Cyprinus carpio* L.) namely promonocyte, young erythrocyte, erythrocyte, epithelial-like, macrophage, orthochromatic erythroblast, young basophilic progranulocyte and basophilic erythroblast. Four types of cells were unidentified and these cells were labeled as A cell, B cell, D cell, and F cell. The B cell was dominated either in primary culture or subculture.

Keywords: kidney cells, cell line, fish serum, FBS, *Osteochilus vittatus*