

ABSTRACT

Rotifers have long been a subject of investigation, but the spotlight has largely focused on the vast aquatic environment. Only recently have lakes started to receive more attention for various reasons, despite their greater susceptibility to human activities and relative instability. It remains unclear how rotifers and other organisms inhabiting lakes are structured and organized. The presence of rotifers is significantly influenced by several environmental factors, including pH, temperature, oxygen levels, and trophic conditions, as well as biotic factors like predation, competition among different zooplankton species, and pressure. The goal of the present work is to isolate and characterize rotifers based on their morphology and estimate their protein content.

Freshwater samples were collected from Nasir Bagh and Lahore Canal Lake. These samples consisted of a mixture of ciliates such as Tetrahymena, Paramecium, Stylonychia, Vorticella, and rotifers. Rotifers were identified based on their morphology, including size, shape, and movement. Rotifers can be cylindrical or elongated, with wheel-like ciliary structure at their anterior regions. Their bodies are divided into three parts: the head, trunk, and foot. Pure isolates of rotifers were cultured and maintained in a wheat grain medium along with algae at different temperatures to determine the optimum temperature for their growth. The maximum growth of rotifers was observed at 27 ± 2 °C.

Single-cell protein was obtained by centrifuging pure rotifer cultures and lyophilizing them. After lyophilization, the dry protein mass was subjected to protein estimation using the Lowry method and analyzed with a spectrophotometer. The effect of single-cell protein on the body weight gain of quail birds was studied through a trial. A 28-day trial was conducted, and 60 one-day-old quails were assigned to five groups. Two groups served as control groups and were provided with non-protein feeds (wheat, maize, and corn) and commercial feed. The next two groups were offered commercial feed along with a supplement of SCP (0.5 ml and 1 ml per day). The last group received non-protein feed along with SCP (0.5 ml/day). Feed and water were supplied *ad libitum* from day 1 to day 28. Feed intake, body weight gain, and food conversion ratio were evaluated weekly. The treatment group that consumed commercial feed along with SCP (1 ml) exhibited the most significant growth.