

Effect of Temperature and Photoperiod on Production and Morphometric Characters of a Freshwater Cladoceran, *Ceriodaphnia quadrangula* (O. F. Muller, 1785)

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Abstract

The most important factors controlling cladocerans production, growth, and morphometric characters are temperature, food quantity and quality and photoperiod. Effects of temperature and photoperiod on production, and morphometric characters of cladoceran, *Ceriodaphnia quadrangula*, were examined by culturing on green algae *Scenedesmus quadricauda* in 250 ml conical flasks (150 ml water). Treatments used for temperature (°C) and photoperiod (light hours:dark hours) were 20, 25, 30 (°C) and 12:12, 24:0 and 0:24, respectively. The maximum population density (5.51 ind./ml) obtained at 24:0 and 30 (°C), while maximum body length (731 µm) and maximum body width (491 µm) obtained at 0:24 and 20 (°C). Correspondingly, the maximum adult (61 %), maximum neonate (39 %) and young (9 %) in population under culture conditions of 0:24, 12:12, 24:0 (L: D) and 20 (°C) obtained, respectively. Overall, this research showed that growth and reproduction of *Ceriodaphnia quadrangula* gave better performance at 25 (°C) and 24:0, light: dark photoperiod.

Keywords: Temperature, Potoperiod, Morphometric Characters, *Ceriodaphnia quadrangula*

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