Postembryonic Development of Neutrodiaptomus tumidus Kiefer, 1937 (Crustacea: Copepoda) from Taiwan

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Most species of Neutrodiaptomus are endemic to East Asia (Banarescu 1990). However, only limited information about developmental stages of Neutrodiaptomus has been reported. Neutrodiaptomus tumidus from Taiwan was described by Kiefer in 1937. Collection localities were lakes and ponds in the mountains of southern Taiwan near Pingtung and Kuangshung at elevations ranging from 2000 to 2300 m. In April 1997, we took zooplankton samples from small pools distributed in the central mountain area of Taiwan, from 2700 to 3000 m. Many red-colored N. tumidus individuals were found in these small pools, but no other calanoid was seen. From different samples, we were able to find 6 naupliar and 6 copepodid stages of N. tumidus. The present study is the 1st description of the developmental stages of Neutrodiaptomus tumidus collected from the field.

MATERIALS AND METHODS

The collections were made from highland pools of the central mountain area of Taiwan on 1-4 April 1997. The collection localities are: Nanko Pool, a small pool located near Nanko Mountain, elevation 2800 m, 0.1 ha surface area, 0.5 m in depth; White-stone Pool (23°55'40"N, 121°16'00"E) 2770 m, 0.6 ha, 6 m deep; Deer Pond (23°53'30"N, 121°15'10"E) 2850 m, 1 ha, 2 m deep; and Seven-color Lake (23°45'00"N, 121°13'40"E) 2900 m, 2.2 ha, 7 m deep. Specimens were collected with a plankton net 30 cm in length and 15 cm in diameter at the opening, which was equipped with a small collecting bucket at the end with a mesh size of 55 µm. All samples were fixed with 5% formalin in the field, and sorted and identified under a stereomicroscope in the laboratory. Identified specimens were then transferred to 70% ethanol. Appendages were dissected and mounted on microscope slides with polyvinyl lactophenol tinted with lignin pink. Images were made with a camera lucida. Measurements and observations were aided with an image analysis system. Descriptions of morphology and abbreviations follow Shih and Maclellan (1977) and Reddy and Devi (1990). The average and standard deviation of body length and length ratios are based on measurement of 10 specimens.