

RECYCLING OF HATCHERY-USED WASTEWATER FOR SEED PRODUCTION OF GANGETIC PRAWN, *MACROBRACHIUM GANGETICUM* (BATE, 1868)

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(Received 12 March 2019, Revised 30 May 2019, Accepted 12 June 2019)

ABSTRACT : Seed production of freshwater prawns requires brackishwater of varying salinity to complete their larval cycle in river mouths (estuaries). Though, the hatchery technology for seed production of freshwater prawn *Macrobrachium gangeticum* has been developed and standardized, the activity is mostly concentrated in coastal regions as huge quantity of seawater is required for larval development. Attempts were made to operate the hatcheries for seed production of the freshwater prawn in interior area with the chemically reconstituted seawater as well as natural seawater transported from the sea, the procedure is complicated and involves high cost. An attempt has, therefore, been made to reuse the hatchery wastewater for the seed production of *M. gangeticum* after proper treatment and aging. PL production was documented during the two years which was 5,577, 5,299 and 5,056 with PL/L 21.29, 17.66 and 16.82 in trials 1, 2 and 3, respectively during the first year. PL production recorded during second year was 5,167, 5,070 and 4,748 with PL/L 17.3, 16.9 and 15.8 in trials 1, 2 and 3, respectively. The average post-larvae production of three trials was 5,367 during the first year and 4,995 the second year.

Key words : Hatchery used seawater, post-larvae, production, *Macrobrachium gangeticum*.

INTRODUCTION

Macrobrachium rosenbergii farming is practiced in many countries of the world (New and Valenti, 2000). *M. acanthurus* (Wiegmann), *M. amazonicum* (Heller), *M. americanum* (Bate), *M. carcinus* (Linnaeus), *M. formosense* (Bate), *M. lar* (Fabricius) and *M. ohione* (Smith) are also of commercial value in some other countries which could develop better markets (New and Valenti, 2000; New and Nair, 2012). The freshwater prawn farming is now on a commercial scale in India as it has a high foreign exchange trade (Kutty, 2005; New, 2005; Kutty *et al*, 2009; Nair and Salin, 2012; New and Nair, 2012). In India, some of the work on freshwater prawns have been done which includes *M. rosenbergii*, *M. malcolmsonii*, *M. nobillii*, *M. equidens*, *M. idae*, *M. idella* and *M. lanchesterii* (New and Valenti, 2000; Kanaujia and Mohanty, 1992, 2001; Kanaujia, 1998, 1999; New, 2002; Nair and Salin, 2012; Mishra *et al*, 2011, 2014). Of the approximately 40 cultivable species of prawns reported from India, 15 are considered important for cultivation in commercial-scale to augment production (Tiwari, 1949, 1975; Tiwari and Holthuis, 1996; Kutty *et al*, 2009; Pandey *et al*, 2010; Nair and

Salin, 2012). *Macrobrachium gangeticum* is also a potential candidate for commercial farming with the development of seed production and grow-out culture technologies (New and Valenti, 2000; Kanaujia *et al*, 2001, 2005; Mishra *et al*, 2011). It occurs in river Ganga and Brahmaputra draining through West Bengal, Bihar, Uttar Pradesh and Assam (Tiwari, 1949, 1955; Tiwari and Holthuis, 1996). The survey report indicated its migration up to Kanpur about 1300 km away from the estuary of Bay of Bengal (Tiwari, 1949, 1955; Jhingran, 1956; Prasad and Kanaujia, 2006). The total length and weight of the species ranged between 200-250 mm and 50-100 g in males and 150-200 mm and 35-75 g in females (Tiwari and Holthuis, 1996; Kanaujia *et al*, 2001; Mishra and Dash, 2019). Larval development of the species occurs in natural brackishwater in the estuary (Kanaujia *et al*, 2001, 2005; Mishra *et al*, 2011). The development of *M. gangeticum* under hatchery conditions needs a large amount of brackishwater for commercial seed production which is labour intensive, expensive and only viable in coastal regions. Some studies have reported the development of post-larvae production of prawns in synthetic seawater (Aquacop, 1977; Tunsutapanich, 1980; Nair and Hameed; 1990; Kanaujia, 1998, 1999, 2006;