moon, and which hides in small caves, is *P. echinatus* (cf. Vianna, in press), and Soares de Souza states that it was then (around 1578) called Potiquiquiá.

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REFERENCES


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A NOTE ON HATCHING AND DECAPSULATION IN *STREPTOCEPHALUS DICHOTOMUS* BAIRD, 1860 (ANOSTRACA)

BY

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In general, the mechanism of hatching in aquatic invertebrates is osmotic which mechanism is aided by mechanical means (Davis, 1965). In such invertebrates, the egg imbibes water to make the egg membranes burst in

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order to facilitate easy hatching. In recent years the presence of a special hatching enzyme, capable of chemical alteration of egg membranes has also been reported in a number of crustacean species (Clare et al., 1982; Crisp, 1986). Such studies have not been extended to freshwater anostracans although some information is available on the brine shrimp *Artemia salina* (L., 1758) (cf. Clegg, 1964). Complete separation of nauplii from the cysts in anostracans is not always possible. The shells, when ingested by the crustacean’s predator may cause deleterious effects due to their high bacterial load (Wheeler et al., 1979; Munuswamy, 1986). Hence in the present study some preliminary observations on hatching as well as decapsulation of the cyst have been made in the freshwater fairy shrimp, *Streptocephalus dichotomus* Baird, 1860.

The dry cysts (= fertilized and shelled eggs) of *S. dichotomus* were hydrated for 1 to 2 hours in freshwater and aerated sufficiently. The cysts were then transferred to the decapsulation solution as soon as they had been fully hydrated. A 10% sodium hypochlorite solution was used as a decapsulation solution. For every 10 mg of dry cysts, 5 ml of 10% sodium hypochlorite was added in embryo cups. The rise in temperature was noted. The colour change from dark brown to yellowish white indicated complete decapsulation of the cyst. Periodical observation was made to check the structural and colour changes in the cyst membrane (figs. 1-3). After 30 minutes of immersion, the decapsulated eggs were separated using a sieve with 120 μm meshes and washed repeatedly with tap water. A 10% sodium hypochlorite solution seems to be the best decapsulation solution if compared to hydrogen peroxide, stannous chloride, ether, and a chloroform-methanol mixture.

The swelling of the cyst after treatment clearly indicates the osmotic activity of the decapsulation solution. Further chromatographic studies using ammoniacal silver nitrate on the egg shell revealed the presence of trehalose (Munuswamy & Subramoniam, 1984). Trehalose is the main source of both glycerol and glycogen. Clegg (1965) reported that the osmotic pressure of the external medium appears to stimulate the formation of glycerol at the expense of glycogen. The formation of glycerol is thus an adaptation to increase the internal osmotic pressure above the external osmotic pressure so that osmotic rupture of the hard outer shell may be facilitated. As trehalose is detectable only in the brown, shelled eggs, osmotic hatching is possible in the cyst of *S. dichotomus*. Besides this, the eggs do not show any morphologically distinct area that ruptures at emergence.

In *S. dichotomus* once the shell ruptures the nauplius become noticeable and essentially it claws its way out of the egg membranes. Thus the osmotic hatching is aided by mechanical means. In anostracans, osmotic hatching is economic and essential for the survival of cysts in ephemeral water bodies. However, further studies on the origin and nature of hatching enzyme would throw more light on this aspect.