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Defensive behaviour of *Melanobatrachus indicus* (Anura: Microhylidae) in the Western Ghats, India

Arun Kanagavel^{1,2} and Benjamin Tapley^{3*}

Behavioural avoidance, cryptic and aposematic colouration, toxic and distasteful skin secretions and defensive postures are all strategies that have evolved in anuran amphibians in response to predators (Wells, 2007; Toledo, Sizima and Haddad, 2011).

Here we report the anti-predatory behaviour in the Endangered black microhylid frog (*Melanobatrachus indicus*) which is endemic to the Western Ghats in India (Biju et al., 2004). A rarely observed frog, this species is ranked 58 on the Zoological Society of London's EDGE amphibians list because of its unique evolutionary history and threat status (Isaac et al., 2012).

The observations described here were observed in a single specimen at the Anamalai Tiger Reserve in Tamil Nadu. The specimen was found at 15:00hrs under a large decaying log in a swampy patch of semi-evergreen forest at 1,300 m asl. GPS location is not provided here due to existing collection pressures. When this individual was disturbed the initial defensive behaviour was to remain motionless. When the animal was picked up, the forelimbs and hind limbs were brought in close to the body and the back became arched (Fig. 1). This form of defensive behaviour is known as contraction and its main function is to avoid injuries to the frog during subjugation and ingestion by its predators (Toledo, Sizima and Haddad, 2011). *Melanobatrachus indicus* has brightly coloured orange patterns on the ventral regions of the chest, upper arms and on the undersides of the thighs. This aposematic colouration remained largely hidden

when this individual exhibited contraction behaviour. We suspect that only a limited portion of this species' anti-predator behavioural repertoire was observed and suspect that it exhibits thanatosis revealing its brightly coloured ventral surface, a behaviour exhibited by other species with conspicuously coloured undersides (see Escobar-Lasso and González-Duran, 2012).

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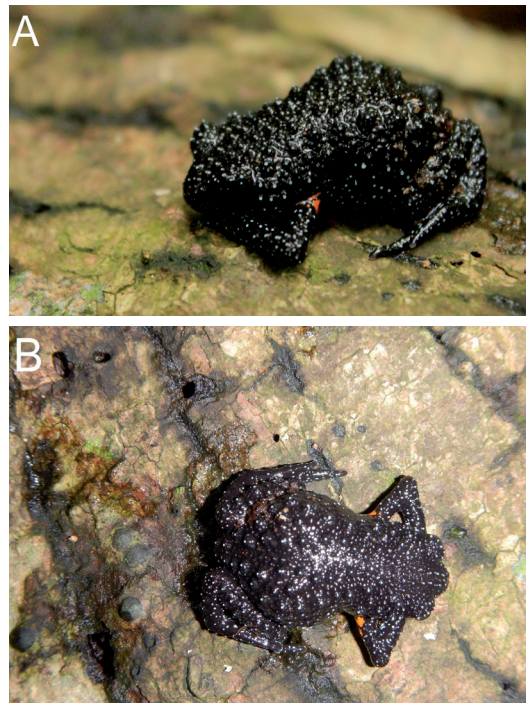


Figure 1. A. Contracting behaviour in the black microhylid frog *Melanobatrachus indicus*. A. Lateral view. B. Dorsal view.

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