



Two Merolepid (Partially Scaleless) Indian Cobras (*Naja naja*) from Maharashtra, India

Amit Sayyed¹ and Rahul Shinde²

¹Wildlife Protection and Research Society, India (amitsayyedsatara@gmail.com [corresponding author])

²33/2Vidya Nagar, Shelgi Tal-North Solapur, Maharashtra, India (shinderehul556@gmail.com)

The epidermal scales of reptiles provide protection against abrasion, ultraviolet irradiation, and water loss (Alibardi 2003). Nevertheless, merolepid (partially scaleless) snakes have been found in nature (e.g., Stickel 1942; Smith et al. 1996, 2000) and individuals without dorsal scales are commonly bred in captivity (e.g., Bennett and Licht 1975; Ultimateexotics 2019; Tornio 2021). Licht and Bennett (1972) found no difference between scaleless and normal snakes in rates of pulmocutaneous water loss and heat transfer. Bennett and Licht (1975) demonstrated that rates of water loss through the skin was equal to or less than those of normal snakes, noted that scaleless snakes sometimes kept themselves slightly more hydrated than normal snakes, and indicated that scaleless snakes in nature exhibited no more scarring than fully scaled snakes. However, the paucity of reports of wild-caught merolepid snakes (e.g., Smith et al. 1996) suggests that scaleless snakes likely suffer higher mortality than fully scaled snakes.

Herein we report two cases of merolepidosis in Indian Cobras (*Naja naja*) from Solapur District, Maharashtra, India. The first (Fig. 1) was a subadult (~75 cm total length) rescued from a residential area near Jam Mill in December 2012 by Audumber Gejage. The second (~81 cm total length) was rescued on 31 December 2019 by Pravin Jeure and Siddharam Koli at Soninagar, Modisolapur. Scales on top of the head, supra- and infralabials, and dorsal and lateral body scales were missing in both snakes; however, rostrals, mentals, and ventral scales, including cloacal plates and subcaudals, were present. After examination, both snakes were released into natural habitat.

Mutagenic effects of pollution have been known for decades (e.g., Sutton and Harris 1972), and Gray et al. (2001) listed multiple abnormalities (including merolepidosis) observed in Eastern Garter Snakes (*Thamnophis s. sirtalis*) that might be linked to environmental toxins at a superfund site in Pennsylvania, USA. To the best of our knowledge, this



Fig. 1. A merolepid (partially scaleless) subadult Indian Cobra (*Naja naja*) from Solapur, Maharashtra, India. Photograph by Rahul Shinde.

is the first report of merolepid snakes in India. Whether pollutants from the many textile and sugar mills in the area are responsible is unknown but the presence of these merolepid cobras indicates that further research is necessary.

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