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RECORD OF LEUCISM IN GREEN KEELBACK *MACROPISTHODON PLUMBICOLOR* (CANTOR, 1839) IN AMRAVATI DISTRICT, MAHARASHTRA, INDIA



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ABSTRACT

The present paper provides the information about a record of leucism in *Macropisthodon plumbicolor* (Cantor, 1839). Leucistic wild individuals are less common in nature. A specimen with a length of approximately 21 inch was observed on 23 July 2015 from a field near MIDC old bye pass road of Amravati district (M.S.) India. It was observed, photographed and identified with the help of visible morphological characters.

KEY WORDS: *Macropisthodon plumbicolor*, Leukism, Amravati, India.

INTRODUCTION :

Unusual coloration in vertebrates does not occur frequently in nature, yet it is recorded in a large variety of species (Bried *et al.*, 2005, Franz and Fleck, 2009). In general, colour and pattern in reptiles is produced by a combination of pigments and structural compounds (Bechtel, 1995). There are multiple varieties of chromatophores, the failure to produce a normal amount of pigment in one cell type does not generally alter the ability of the other chromatophores. Thus, various aberrant colours and patterns in reptiles are expressed and the most striking colour pigment anomaly is albinism and leucism (Gamble *et al.*, 2006).

Albinism and Leucism have already been recorded in fish (Veena *et al.*, 2011), amphibians (Mitchell and Church, 2002), reptiles (Krecksak, 2008), birds (Nogueira and Alves, 2011) and mammals (Reisinger *et al.*, 2009). Albinism, derived from a Latin word 'albus' which means 'White', is a form of

hypopigmentary congenital disorder, characterized by lack of melanin pigment and an animal with such a condition could have either pure or partial albinism (Cyril, 2009). Albinism is caused by the absence of the tyrosinase enzyme, which is necessary for the synthesis of melanin, resulting in the absence of pigment in the skin, the iris and the choroid. Further, it is due to a genetically inherited condition in which a recessive gene affects enzymes involved in the metabolism of various chromatophore pigments (Spadola and Toro 2007). Leucistic snakes have a diminished number of iridophores and probably very low number or no melanophores and xanthophores (Bechtel, 1991). Leucism is a form of partial albinism characterized by the normal pigmentation of eyes, legs and beak, while skin or feathers present lowered or absent coloration (Sage, 1962; Forrest and Naveen, 2000).

Many researchers consider leucism as partial albinism (McCardle, 2012; Costa de Noronha *et al.*, 2013). Albinism is caused by several different genes (Summers, 2009), while leucism is controlled by a single recessive allele (Owen and Shimmings, 1992). Inherited color defects, such as albinism and leucism, are well known in several animal species including snakes (Bechtel, 1991). Wild albino and leucistic animals are rare (Walter, 1938), mainly due to their low survival rates. Albinotic and leucistic individuals are less common in nature, but are popular and intentionally selected by herpetoculturists, who breed color variants of several species of Pythononiae and Colubridae (Bechtel, 1995).

Methodology

Healthy climatic and ecological condition of Amravati district (M.S.) India is well known for its rich biodiversity. On 23 July 2015, a white color snake was observed in a field near MIDC old bye pass road Amravati district (M.S.) India. Area lies between 20°55'33"N and 77°45'53" E. Specimen was observed, photographed and identified by observing morphological characters. For identification of the observed snake, keys and methods suggested by Daniel (2002), Whitaker and Captain (2008), and Khaire (2010) were used.

Observation and Discussion

Observed snake specimen was identified as adult *Macropisthodon plumbicolor* (Cantor, 1839) with leucism. Body of specimen was stout with approximate length of 21 inch. Dorsally, the snake was white in colour with light brown small bands from anterior to posterior part of body. An inverted V shaped light brownish coloured mark was present on the head. The dorsal scales were strongly keeled. Ventrally the belly was whitish to light cream in colour without any spots or markings. Eyes were large and green with round pupil as found in normal specimen. Tongue was pinkish in color. Tail was short (fig. 1 and 2).

Generally, the normal specimens have bright or dull green body, sometimes with faint irregular black bands. Body structure is rounded. Eye fairly large and the rostral scale are just visible from above. The dorsal scales are strongly keeled, in 23 to 27 rows. Young snakes have a bright yellow or orange inverted V shaped mark on neck, bordered on both sides by a dark blue-black area and also have a black stripe from eye to angle of mouth (Whitaker and Captain, 2004). Naturally feeds on toads, lizards and frogs.

A perusal of literature revealed that there are a number of instances of complete, incomplete and partial albinism in Indian reptiles in general and snakes in particular (Lahiri, 1955; Whitaker, 1971; Basu and Srivastava, 2003; Cyril, 2009; Vyas 2012, 2013; Vyas *et al.*, 2012; Sayyed, 2012; Hoshing *et al.*, 2013). Cases of albinism and leucism among viperinae have been also reported from Europe (Krečsák, 2008). Few cases of total albinos have been reported in *Macropisthodon plumbicolor* with yellowish

body (Sayyed 2012) and whitish-pinkish body (Hoshing et al., 2013). A case of leucism has also reported in *Pseudoboa nigra* in southern Amazon, Brazil (Costa de Noronha et al., 2013).

Albinism can be defined in several different ways, but there are a few distinctive types of albinism depending on certain defining characteristics. True or complete albinism is the total absence of integumentary and retinal pigmentation (Sandoval et al., 2006). Partial albinism occurs when pigment is reduced or absent from the skin, feathers, or eyes (Berdeen and Otis, 2011). Leucism or leukism is a form of partial albinism characterized by retention of color in the eyes, bill, and legs but the skin or plumage contains no color pigment (Forrest and Naveen, 2000).

Vyas (2013) has pointed out that the further research is needed on histopathology and biopsies of skin tissue and 'dopa test' to enrich the knowledge on colour anomaly in reptilian species. Further, a substantial quantitative data is required to analyze the pattern of occurrence of leucism in snakes.



Image.1 Leucistic *Macropisthodon plumbicolor*



Image .2 Leucistic *Macropisthodon plumbicolor*

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