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A case of partial Albinism in Red vented Bulbul (*Pycnonotus cafer*) from Central Aravalli Foothills, Rajasthan

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ABSTRACT

Birds are well known for their tremendous colourations and these colour patterns are species specific. Any abnormal condition in these colour patterns leads to Albinism, Xanthism, Erythrism and Melanism according to their pigment pattern. The present note is a case of partial albinism in Red vented Bulbul (*Pycnonotus cafer*) from Central Aravalli Foothills, Rajasthan.

Key words: Partial albinism, Red-vented Bulbul, Central Aravalli foothills.

Birds are considered as the most colourful creatures of the Mother Nature. They have unique colour plumages in their different life periods i.e. breeding plumage (bright colour patterns during the breeding season), non-breeding (comparatively less colour pattern during the rest period of life except the breeding season) and eclipse plumage (transitory phase between breeding and non breeding plumages and vice versa). To achieve these colour patterns birds change their feather coats by plucking off the old feathers and new feathers grow in place of them. These marvellous colour patterns of birds are due to presence of specific pigments viz. carotenoids, melanins, porphyrins etc. If the concentration and occurrence of these pigments in both the spatial and temporal concerns of birds' body is unusual in comparison to regular pattern this leads to abnormal plumages in birds and is categorized under four major groups 'Albinism, Xanthism, Erythrism and Melanism'.

Birds lacking few or all of the pigments become partial or complete white categorized under albinism. In other words, albinism is the reduced

production or absence of the pigment melanin mainly responsible for integumentary colour patterns. In birds this trait is regulated by genetic polymorphism. Albinism is best recognized by abnormal body colouration in general and abnormal coloration of the skin, hair, feathers, scales or eyes in particular (Kinner et al. 1985; Oetting & King 1999).

Albinism can be further classified in distinct types depending on specific characteristics of presence of melanin pigment. True or complete albinism is the total absence of integumentary and retinal pigmentation (Sandoval-Castillo et al. 2006). Partial albinism occurs when pigment is reduced or absent from the skin, feathers, or eyes. Partial albinism can be broken down further to levels of incomplete, imperfect, and partial albinism (Jehl 1985). Leucism or leukism is another form of partial albinism characterized by retention of colour in the eyes, bill, and legs but the skin or plumage contains no colour pigment (Forrest & Naveen 2000). Xanthic animals only produce a pale yellow pigment and are generally

described as blonde. Xanthic is not commonly used and tends to be interchangeable with leucistic. The pied or piebald condition is an intermixture of a pattern of localized irregular patches (Acevedo et al. 2008; Singh 2010). Some authors defined the term leucistic instead of partial albinism (Jehl 1985, Owen & Shimmings 1992, Castillo-Geurrero et al. 2005). Melanism is the opposite of albinism and is caused by excessive melanin pigment deposition. It is even more infrequent than albinism and results in a very dark appearance or black coat colour pattern (Sage 1963).

In terms of genetics multiple alleles control skin, hair and eye pigmentation and different alleles control the amount of pigmentation (Searle 1968; Spritz 1994; Acevedo et al. 2008). Albinism is also controlled by several genes; albino animals are rare because the albino series of alleles are recessive. Even though the albinos are rare, but passage of these genes continues from one generation to the next, and albinos are still perpetuating in the wild (Summers 2009). In contrast to that, leucism is controlled by a single recessive allele (Owen & Shimmings 1992).

In case of full or complete albinism not only colour of plumage but also bill / beak and legs are white and eyes become pink or red. On the other side, in case of partial albinism only a few plumage areas were white or without usual pigmentation. During development of feathers failure of such pigmentation is due to blockage of few glands, shock, unbalanced diet, disease or injury. These are possible environmental factors which may induce albinism; while few characters were considered as genetic reasons of albinism.

Albinism is a recessive genetic characteristic, and generally quite rare. It is a genetic disorder that inhibits the formation of tyrosinase enzyme that causes the synthesis of melanin. There are four degrees of albinism (McCormac 2001):

- 1) **Total albinism:** the rarest form, in which the individual is purely white with pink eyes:
- 2) **Incomplete albinism:** in which melanin (in birds) is completely absent from eyes, skin or feathers, but not from all three at once.
- 3) **Imperfect albinism:** where melanin is only partially inhibited, resulting a pale organism.
- 4) **Partial albinism:** the most common form, where localized body parts are white and the patchy condition are also seen.

The majority of unnaturally white birds are categorized under the fourth category.

Normal Colouration / Plumage: *Pycnonotus cafer* (Red-vented Bulbul) belongs to the family Passerines and are commonly known as bulbuls. It is resident breeder across the Indian subcontinent, including Sri Lanka, Burma and Tibet. It prefers dry scrub, open forest, plains and cultivated lands and its distribution is affected by the vegetation pattern due to its specific feeding ecology. The red-vented bulbul is easily identified by its short crested black head with a squarish appearance, white rump, white-tipped black tail and red vent. The body is dark brown with scaly pattern (Grimmett et al. 2014).



Fig. 1. The various views of Partial Albino Red-vented bulbul from Central Aravalli Foothills.

On 14th of January 2018, during a regular bird watching trip, authors explored certain wetlands at the foothills of central Aravalli mountain ranges. Khoda Ganesh was one of the observation sites situated nearly 15 km from Kishangarh in Ajmer district; Rajasthan (26°31'14"N and 74°49'4"E) was also explored. Several bird species were observed during this survey. Pilgrims offer grains and other materials to birds and other animals near the temple. The animals involved in communal feeding are Common Myna, Bank Myna, Asian Pied Starling, Brahminy Starling, Red-vented Bulbul, Yellow-vented Bulbul, Common House Crow, Eurasian Collared Dove, Laughing Dove and Rose Ringed Parakeet in association with wild rats, Squirrels, Rhesus Macaque etc.

In that community authors observed an interesting case of albinism. The head, nape, breast and back of the individual were highly patchy with irregular white and black feathers, the concentration of white coloured feathers was high; few flight feathers were also white. The beak, legs and eyes were in routine colouration and the vent was also in normal red colour. Thus, the observed individual was considered as partial albino of Red-vented Bulbul. That individual of Red-vented Bulbul was also involved in feeding of grains and sweets offered by the pilgrims. The possible factor for this situation is assumed due to abnormal diet as the observed community of birds involved in feeding of sweets and other processed food stuff.

Extreme variations of skin pigmentation have been recorded earlier in Red-vented Bulbuls. Law (1921) reported a melanistic individual from India that was a deep black, with the complete absence of white or pale coloration. Gabadage et al. (2015) documented a case of total albinism in a Red-vented Bulbul at a private residence located in the suburban town Gampaha, Sri Lanka. Ghose & Khan (2005) observed Albino bulbul at Keibul Lamjao National Park, Manipur, India. Berry (1894), Baker (1915), Joshua (1996) and Mohan et al. (2017) reported different forms of partial albinism and leucism among bulbuls from different sites in India. Mestri et al. (2011) documented an individual with incomplete albinism in Red-vented Bulbul from Raigad district, Maharashtra.

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