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Therapeutic management of Leukoderma in Indian buffaloes

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Abstract
Leukoderma is one of the neglected skin disorders which may possess serious health implications in animals. Leuckoderma characterized by partial or total loss of melanin pigment from the skin. A total of 39 large animals were diagnosed with various skin diseases/infestations during 2020-21. Out of 39, 2 animals were diagnosed with leukoderma. The present study reported two cases of four-year-old buffalo visited to Skin Disease Laboratory, Veterinary Clinical Complex, LUVAS, Hisar with depigmentation, white and reddish brown patches on ventral abdomen region was observed in affected body parts. Skin scrapings were taken for further diagnosis. No ectoparasites were observed in microscopically examination. Hematological examination reveals mild leukocytopenia with lymphopenia and others value were in normal range. Animal was successfully treated with injection Curan BH at the interval of 10 days, administration of copper sulphate and Mineral mixture supplementation with supportive treatment and recovery observed after 2 month of treatment.

Keywords: Buffalo, management, Cu deficiency

1. Introduction
Leukoderma, also known as vitiligo, is a dermatological condition characterized by the loss of pigmentation in the skin, resulting in the appearance of white patches. While this condition is commonly observed in humans, it can also affect animals, including buffaloes. Leukoderma in buffaloes can have significant implications for their health, well-being, and productivity. This introduction aims to provide an overview of leukoderma in buffaloes, including its causes, symptoms, and potential management strategies. Leukoderma in buffaloes is characterized by the presence of depigmented or white patches on the skin. These patches may initially appear small and gradually enlarge over time [1]. The affected areas commonly include the face, neck, back, and limbs. In some cases, the depigmentation may also affect the mucous membranes, such as the mouth and genitals. Apart from the visible skin changes, buffaloes with leukoderma generally do not exhibit any other signs of illness or discomfort. While the precise causes of leukoderma in buffaloes are not fully elucidated, it is believed to arise from a combination of genetic, immunological, and environmental factors. Genetic predisposition plays a significant role, as certain genetic variations or mutations may contribute to the malfunctioning or destruction of melanocytes, the pigment-producing cells, copper deficiency in the skin. These genetic factors can be inherited and increase the susceptibility to leukoderma [2]. Some of the studies recorded decreased plasma copper and sulphur levels as compared to normal and non-significantly higher Molybdenum and iron level in leukodermic buffaloes [3].
Effective management of leukoderma in buffaloes is essential to minimize the impact of this condition on the affected animals and their overall well-being. Management strategies for leukoderma in buffaloes can include various approaches aimed at prevention, treatment, and supportive care. This paragraph provides an overview of key management practices for leukoderma in buffalo herds.
Preventive measures play a crucial role in managing leukoderma in buffaloes. Providing adequate shade and protection from excessive sunlight exposure can help prevent the

worsening of depigmented patches and minimize the risk of sunburn. Additionally, maintaining a clean and hygienic environment for the buffalo herd can reduce the likelihood of secondary infections or complications. Regular veterinary check-ups and monitoring for early signs of leukoderma can facilitate early intervention and prevent the spread of the condition.

2. Material and Method

A total of 39 large animals were diagnosed with various skin diseases/infestations during 2020-21. All buffaloes related to skin disorders were clinically examined. Out of 39, 2 animals were diagnosed with leukoderma. The present study reported two cases of four-year-old buffalo visited to Skin Disease Laboratory, Veterinary Clinical Complex, LUVAS, Hisar. The buffaloes showing alopecia, depigmentation, white and reddish brown patches on various part of body. Skin scrapings were taken and prepared with 10% KOH for dissolving of thick skin scabs and debris. Blood samples were collected with anticoagulant, EDTA (@ 1 mg/ml of blood) for hematological purposes.

3. Results and Discussion

No ectoparasites were observed in microscopically examination. Hematological examination reveals mild leukocytopenia with lymphopenia and others value were in normal range. Randhawa *et al*., 2009 [4] recorded low haemoglobin (Hb), haematocrit (PCV) and total erythrocyte count (TEC) and non-significantly higher total leukocyte count (TLC) were observed in leukodermic buffaloes. Soodan *et al*. (2007) [5] reported non-significant decrease in Hb, PCV and TEC. Copper injections have been used as a treatment approach for leukoderma in buffaloes. Copper plays a crucial role in melanin production, which is responsible for pigmentation in the skin and hair. However, it's important to note that the use of copper injections for leukoderma treatment in buffaloes may vary in terms of effectiveness and safety [6].

The administration of copper injections aims to supplement the copper levels in the buffalo's body, which may help support melanin production and potentially promote repigmentation in depigmented areas. The dosage and frequency of copper injections should be determined by a veterinarian, considering the specific needs and condition of the affected buffaloes [7].

It is important to follow proper administration techniques and dosage guidelines to prevent potential complications or adverse reactions. Close monitoring of the buffalo's response to the treatment is necessary to assess its effectiveness and make any necessary adjustments. It is crucial to consult with a veterinarian experienced in buffalo health before considering copper injections or any other treatment option. The veterinarian can provide personalized guidance, taking into account the individual buffalo's health status, nutritional requirements, and potential interactions with other medications or treatments [8]. Animal was successfully treated with injection Curan BH at the interval of 10 days, administration of copper sulphate and Mineral mixture supplementation with supportive treatment and recovery observed after 2 month of treatment.

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