THE EXTRACTION OF THE PIGMENT FROM TOURACO FEATHERS BY SOAP SOLUTION

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We wish to record an unusual instance of the extraction of the pigment from a bird's feathers during washing. In 1952, the attendants at the zoo of the Zoological Society of Cincinnati noted that when a two year old, female touraco (an African bird belonging to the family Musophagidae) was given a sponge bath, the bath water was tinged with red. It was suspected that either the bird's feathers had been dyed by an unscrupulous dealer or some contaminant or additive in the water had served to extract the pigment.

The red color in the quill feathers of the touraco is due to turacin, which was shown by Fischer and Hilger (1923, 1924) to be the copper complex of uroporphyrin. Although these investigators believed the compound to be a salt of uroporphyrin I, more recent work (Rimington, 1939; Nicholas and Rimington, 1951) indicates that turacin samples obtained from eleven different species of touracos are all derived from uroporphyrin III; the main porphyrin is accompanied by another porphyrin which, like uroporphyrins I and III, contains 8 carboxyl residues. Eight *free* carboxyl groups are present in the uroporphyrins, and hence it is not surprising to find that turacin is soluble in very weakly alkaline solutions, *e. g.* 1 percent aqueous amonia, and may be extracted from feathers in this manner.

The soap employed in washing the bird in question was a potassium soap said to have a pH less than 9 and containing the antiseptic hexachlorophene. When an acidic soap was substituted, no further extraction of pigment was noted. When touracos are bathed in plain water, a coloration of the bath water is also sometimes noted (Church, 1869), and has been ascribed to the alkalinity of the feces which may contaminate the water with the trace of alkali needed to effect turacin solubilization (Fischer and Hilger, 1924). It is fortunate, from the animal keeper's standpoint, that uroporphyrin pigments are rare and have been found in no other vertebrates.

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