TABLE 1

SUMMARY OF 8 AUTOPSIED CASES TREATED WITH CORTISONE AND ACTH

| Autopsy No. | Age, years | Principal disease | Total dosage | | Total dosage | |
|---|---|---|---|---|---|---|
| | | | Cortisone, mg | No. days treated | ACTH, mg | No. days treated |
| Case 1, OE- 48 | 42 | Periarteritis nodosa | None | .. | 150 | 3 |
| " 2, OE-106* | 3 | Leukemia, acute | 2,950 | 28 | None | .. |
| " 3, OE-110* | 2 | " " | 1,050 | 5½ | " | .. |
| " 4, OE-132* | 3 | Reticular cell sarcoma | 1,150 | 7 | " | .. |
| " 5, OE-152* | 4 | Leukemia, acute | 2,550 | 15 | " | .. |
| " 6, OE-159 | 11 | " " | 7,350 | 35 | 175 | 3 |
| " 7, OE-182 | 4 | " " | 1,450 | 7 | 100 | 2 |
| " 8, 5OR-319* | 28 | Lupus erythematosus | 1,500 | 8 | None | .. |

* Indicates presence of basophilic changes in anterior hypophysis.

dosage, and duration of treatment are summarized in Table 1.

The hypophyses were fixed in 10% formalin for 1 hr, dissected free of dura and weighed on a torsion balance. The weights are not analyzed here because of frequent leukemic infiltrations in that gland. Slices were then cut, and the tissues fixed in Zenker-formalin solution for 24 hr. Following washing and treatment in Müller's fluid, the tissues were dehydrated and embedded in paraffin. Sections were cut at 5 μ. They were stained with analine acid fuchsin and light green and in some instances with azocarmine. Details of the staining procedure used by us are being published elsewhere (*2*).

The changes involved the basophiles, in which replacement of the basophilic granules by lumpy masses of hyaline basophilic material was noted. The alteration was noted usually in parts of the cytoplasm only, although scattered cells showed nearly complete ring formation at the periphery of the cytoplasm. The changes were most marked and advanced in case No. 8. They were seen as early as 5½ days after onset of treatment. No definite changes of this type were seen in two cases, Nos. 6 and 7. In these two cases, courses of cortisone treatment were followed by injections of ACTH. The changes were inconclusive in case No. 1, in which the interval between death and autopsy was longer than 6 hours.

The morphological alterations were comparable to those described by Crooke (*1*) in the hypophyseal basophiles in Cushing's disease and related conditions. In addition to the hyalinization of the cytoplasmic granules, the nuclei were more centrally placed in our cases and were surrounded frequently by a paler zone of cytoplasm in which distinct basophilic granules were noted.

A detailed discussion of the possible significance of these changes will be presented in an article to appear in the near future.

### References


1. CROOKE, A. C. *J. Path. Bact.*, 1935, **41**, 339.
2. LAQUEUR, G. L. *Am. J. clin. Path.*, 1950, **20**, 689.


## On the Pigments of *Allescheria boydii*


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*Allescheria boydii*, a pathogenic fungus, produces a pigmented culture when grown in a basal medium of known chemical composition containing biotin. As first shown by Cury (*1*), this mold is unable to grow when biotin is omitted from the medium, the growth being proportional to the amount of biotin added (*1, 2*).

The pigment appears after 7–10 days of incubation at room temperature when the amount of biotin is higher than 0.0005 μg/10 ml of medium. The appearance of the mycelium varies from reddish to violet or purple. The culture filtrates were golden yellow, varying somewhat in intensity. This yellow pigment proved to be different from the pigment from the mycelium.

The production of both pigments is conditioned by the pH of the medium. Pigmented cultures developed only in the range of pH between 4.0 and 6.8. Above pH 7.0 the mycelium was gray or white, and no pigment could be detected. It has been observed that under suitable conditions the pigments developed in the dark, as well as in the diffuse light of the laboratory.

The powdered mycelium was extracted with ethanol containing 2% hydrochloric acid, and a deep-red extract was obtained. This solution, when concentrated in vacuum, filtered, and left in the icebox overnight, yielded crystalline orange needles, with an mp of 131° C (Fig. 1). Better crystallization was obtained by the addition of a little dioxane.

The rough material was also purified by chromatographic adsorption with $Al_2O_3$. The pigment, dissolved in ethanol and strongly acidified, is easily extracted with chloroform; the red chloroform-extract showed an absorption maximum at 520 mμ (Fig. 2). The yellow pigment from the culture filtrates presented an absorption in the ultraviolet at 360 mμ. These determinations were performed in a Beckman quartz spectrophotometer.

The pigment from the mycelium is red at pH 1.0–2.0, orange at pH 2.2, changing to yellow at pH 7.8 and violet at pH 10.0. This pigment is insoluble in petroleum ether and in water, and soluble in ethanol and methanol

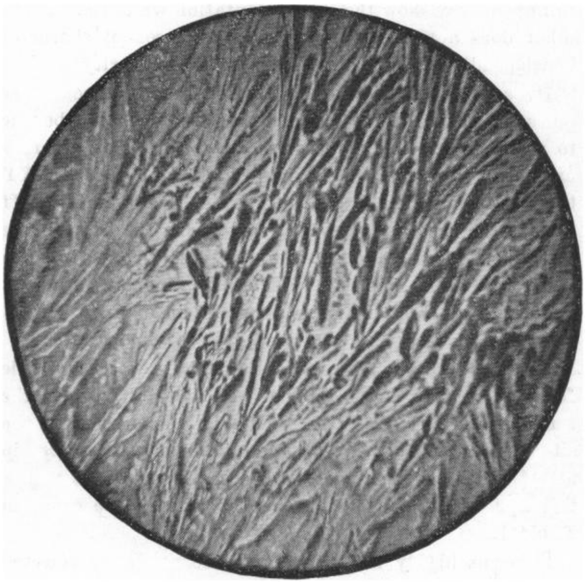

FIG. 1. Crystalline pigment obtained from the mycelium of *A. boydii* (polarized light).

in acid solution, and in chloroform and benzol in very strong acid solution. Aqueous alkaline solution dissolved the pigment, producing a violet precipitate. The yellow pigment of the medium is not soluble in organic solvents.

The reactions presented by both pigments are shown in Table 1.

The reactions presented by the mycelial pigment show that it belongs to the group of quinone pigments. A

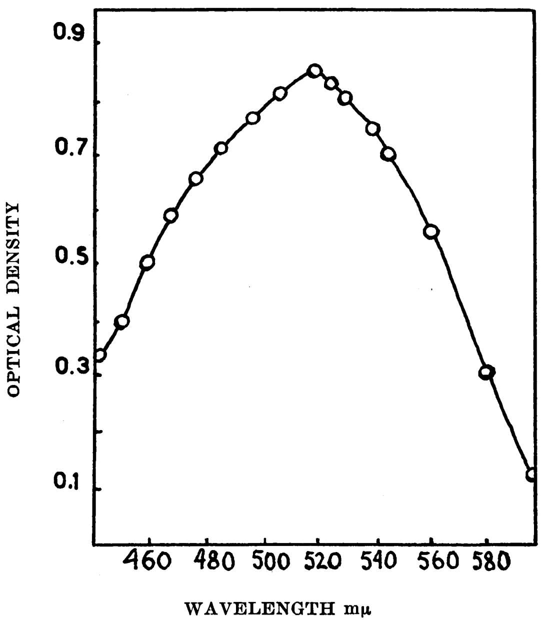


FIG. 2. Absorption spectrum of the mycelial pigment of *A. boydii* dissolved in chloroform. Data obtained with a solution containing 2 mg/ml, the thickness of the absorption cell being 1 cm.

TABLE 1

| Reagents | Mycelial pigment | Pigment of the medium |
|---|---|---|
| Acetic acid | Red with green fluorescence | Not changed |
| Sulfuric acid | Blue-violet | Reddish |
| Ethanol-ammonia | Purple | Not changed |
| Acetic anhydride | Deep-red | Not changed |
| $FeCl_3$ | Olive-green | Brown-red |
| Bromine | Yellow | Orange-yellow |
| Acetic anhydride + $H_2SO_4$ | Brown-red, forming a gelatinous precipitate | Not changed |
| Zn + NaOH | Color discharged | Color discharged |
| Br + NaOH | Color discharged | Color discharged |

more detailed study of the conditions in which this pigment is produced, as well as its chemical composition, is in progress.

**References**

1. CURY, A. *Mycopathologia,* 1950, **5**, in press.
2. VILLELA, G. G., and CURY, A. *J. Bact.,* 1950, **59**, 1.

# The Coloration of the Tail Tip of Young Fer-de-Lances: Sexual Dimorphism rather than Adaptive Coloration

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An interesting example illustrating the complexity of adaptive coloration in animals recently came to our attention with the birth of a brood of fer-de-lances (*Bothrops atrox*). In some individuals of this brood, as is typical for this species and for other pit vipers of the family Crotalidae, the last inch or so of the tail is a brilliant sulfur yellow, except for the very tip, which is dark. The general appearance is that of a yellow worm with a black head. In a number of instances recorded in the literature, which we shall cite, captive individuals have been observed to set the tail twisting and writhing when food is offered. Various authors have suggested that in these forms the tail tip serves as a lure attracting lizards, frogs, or toads to within striking distance of the snake.

The first mention of this adaptation seems to be that of Ditmars (*4*), who described the color of the tail and the tail wiggling behavior of the copperhead (*Agkistrodon contortrix*) and suggested its possible value in luring frogs. Henry (*6*) actually observed young of the hump-nosed pit viper (*A. hypnale*) attract small lizards in this manner and kill and eat them. According to Pycraft (*9*), the same manner of tail wiggling is exhibited by juveniles of the copperhead, the cottonmouth (*A. piscivorus*), and the fer-de-lance. Additional observations substantiating the idea that the bright tail serves as a lure are reported by Neil (*8*) for the copperhead, and