

## BLACK PIEDRA AMONG BRAZILIAN INDIANS

Olga FISCHMAN

### SUMMARY

Black piedra is reported as endemic among Brazilian Indians living at the midwest region of the country. Indians of both sexes were found equally infected. Of 120 samples, 106 have yielded positive results at direct examination and 98 cultures were obtained. Most cases were attributed to climatic conditions of the region, allied to Indians very common habit of using plant oil in their hair.

A few samples of monkey, dog and cat hairs have also been investigated, with negative results.

### INTRODUCTION

Two mycotic infections are characterized by the development of nodules along the hair shaft: black and white piedra. Black piedra is the most frequent and it is caused by the ascomycete *Piedraia hortai*.

In man, the mycosis has been reported in Latin America — Surinam<sup>1</sup>, Venezuela<sup>11</sup>, Paraguay<sup>5</sup>, Argentina<sup>3</sup>, Uruguay<sup>9</sup>, Brazil<sup>6</sup>; in Asia — Indonesia, Indochina, Malaya, Thailand (in KAPLAN)<sup>7</sup>.

In animals, the mycosis has been reported in museum primate pelts by LOCHTE (in KAPLAN)<sup>7</sup>, KAPLAN<sup>7</sup> and VAN UDEN et al.<sup>12</sup>. These last Authors were the first to observe black piedra in living mammals.

The present work reports the occurrence of the mycosis among Indians of the National Park of Xingu, Mato Grosso (Brazil), at the Brazilian midwest region (Fig. 1).

### MATERIAL AND METHODS

In March and July, 1970, hair samples from 120 Indians living at the northern area of Brazilian midwest region ("Parque Nacional do Xingu", Mato Grosso, Brazil) were sent to be examined. The material was

collected from patients who came to the ambulatory for other reasons.

A few samples of monkey, dog and cat hairs have also been investigated.

After direct macroscopic examination, suspected hairs were submitted to microscopic examination, being previously clarified by 20 per cent potassium hydroxide. Positive hairs were cultivated on Sabouraud dextrose agar plus cycloheximide and chloramphenicol. Viability of the fungus was tried in the months following receipt of the material, by serial cultures of samples from hairs kept at room temperature, carried out at one-months intervals.

### RESULTS

From 120 collected samples, 106 were positive at direct examination and 98 cultures of *P. hortai* were obtained.

The nodules varied in size and number for each hair. There were infected hairs with only a single nodule up to hairs with 40 nodules around them. The nodules reached even 3 mm of length. The crushed nodules revealed asci containing 2 to 8 ascospores, measuring 19-45  $\mu$  to 4-7.7  $\mu$  with a polar filament at each end.

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Departamento de Microbiologia e Parasitologia, Escola Paulista de Medicina, Rua Botucatu 862,  
São Paulo, Brasil.

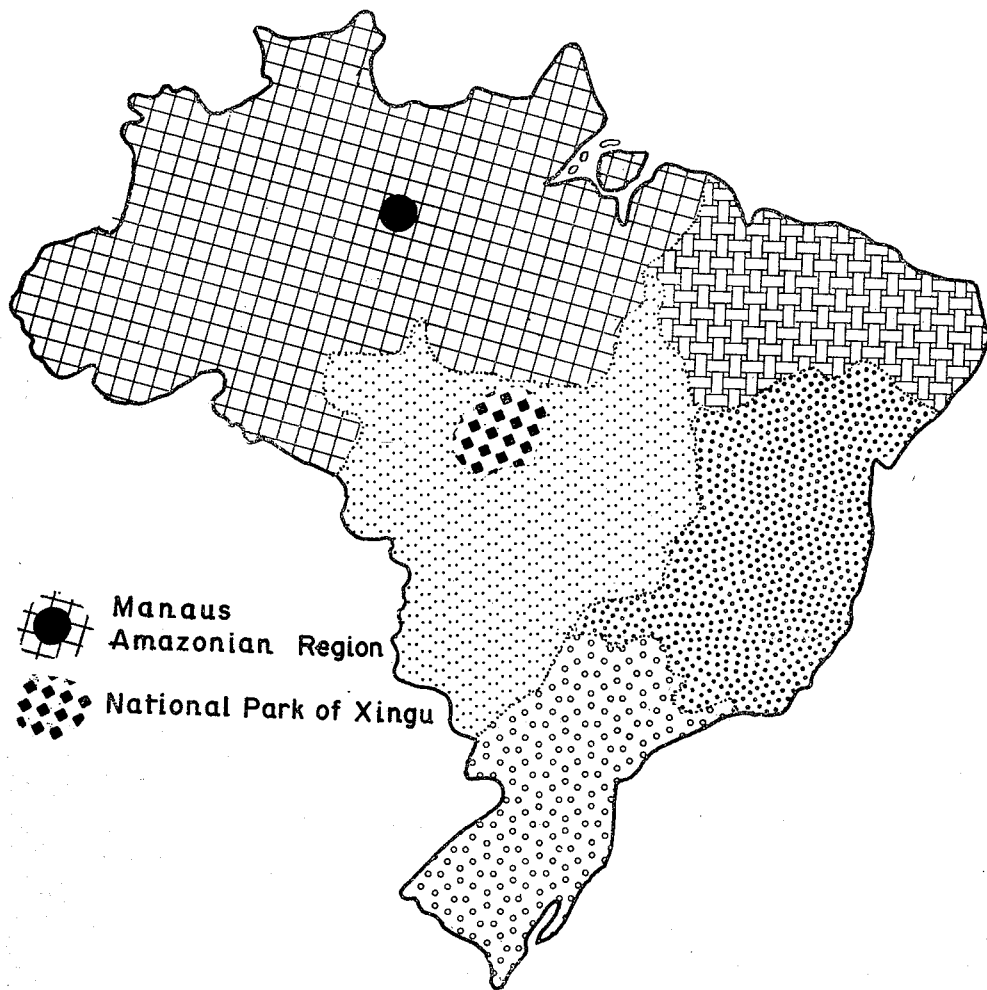


Fig. 1 — Brazilian areas where black piedra has been studied as an endemic mycosis

Although the exact age of the Indian population was not well known, small children up to adults over 70 years of age being found to be infected, the occurrence of the mycosis was mostly seen among young adults.

The samples of mammal hairs examined were non-parasitized.

Viability of the fungus maintained on the hair shaft was demonstrated for 8 months, but no longer.

#### COMMENTS

Black piedra is a common mycosis in America, Africa, Asia, at more or less 20 degrees

latitude north and south of the Equatorial line (Fig. 2). It is of considerable interest to note that this human mycosis has not been observed in Africa; this may reflect a lack of recognition of the disease or the fact that the hair of Africans living in the tropical areas of their continent is resistant to this fungus<sup>7</sup>.

Museum primate pelts in their majority from African origin, were seen to be infected<sup>7, 12</sup>. KAPLAN<sup>7</sup> selected 438 pelts from the collection of the American Museum of Natural History (N. Y.) which had come from the Asiatic, African and American continents. VAN UDEN et al.<sup>12</sup> observed the mycosis also in the fur of living mammals from Africa. They isolated a fungus which was classified

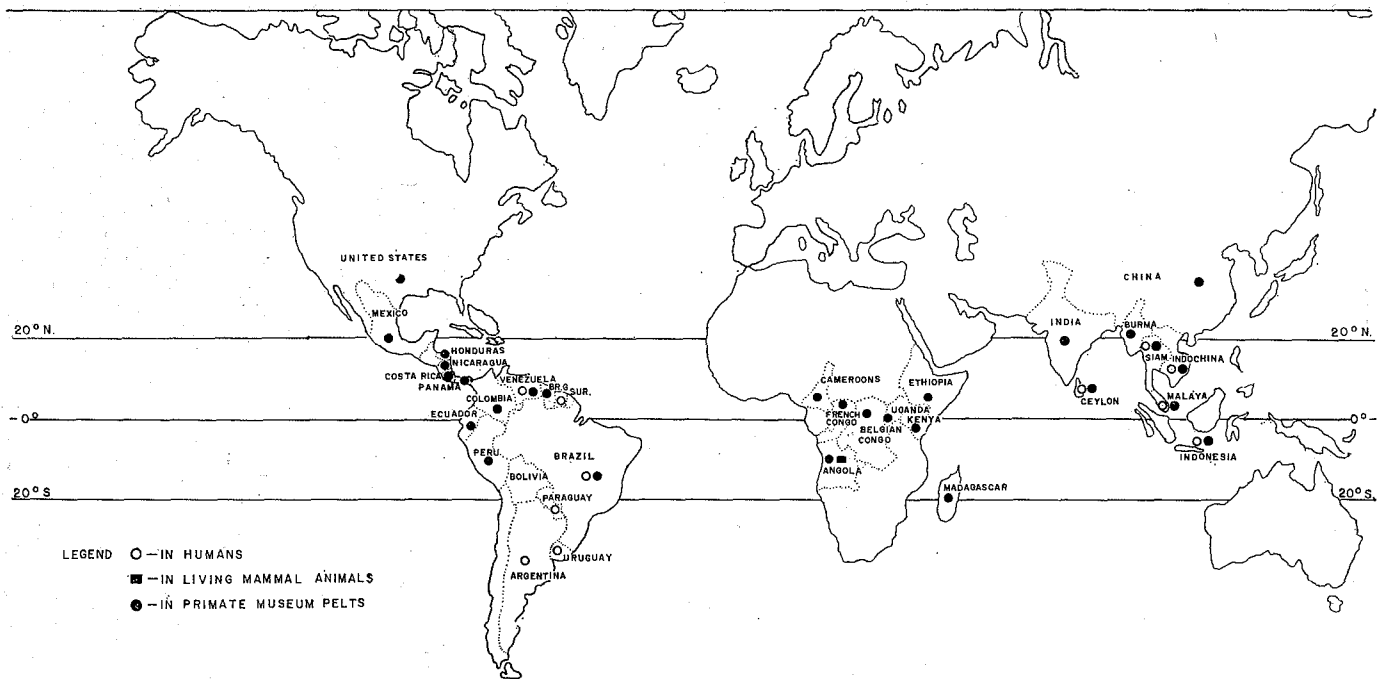


Fig. 2 — World countries of tropical and semitropical climates where black piedra is found

as a new species, *P. quintanilhai*, differing from *P. hortai* chiefly by the absence of polar filaments in their ascospores.

In Brazil, black piedra has been reported in the States of Amazonas, Ceará, Pernambuco, Bahia, Minas Gerais, Mato Grosso, Guanabara, Rio de Janeiro, São Paulo, Rio Grande do Sul<sup>6</sup> and Pará<sup>4</sup> where it was very frequent until 1932. CREVAUX (in LANGERON)<sup>8</sup> reported the mycosis among Amazonian Indians. Nowadays it is a rare disease in all the Brazilian territory except at the region of tropical climate with an annual mean temperature of 26 centigrades, abundant rain reaching, 3,000 mm/year, humidity above 80%. These climatic condition characteristic of the Amazonian area and of the north of the midwest region, allied to habit of using plant oil in the hair, very common among Brazilian Indians, propitiate ideal conditions for the development of black piedra.

In Amazonas, where black piedra was reported as an endemic mycosis, FISCHMAN<sup>6</sup> studied this mycotic infection in 131 from 1649 white and negro patients.

In the present investigation, Brazilian Indians of both sexes were seen to be infected equally, which is in accordance with a previous report that this mycosis is not related to sex<sup>6</sup>, a statement that contradicts many Authors<sup>2, 7, 10</sup>.

#### RESUMO

##### *Piedra negra entre índios brasileiros*

Piedra negra foi assinada como micose endêmica entre os índios brasileiros que vivem ao norte da região Centro-Oeste de Mato Grosso, Parque Nacional do Xingu. Índios de ambos os sexos foram encontrados, igualmente, infetados. Das 120 amostras de cabelo coletadas, 106 foram positivas ao exame direto, obtendo-se 98 culturas de *P. hortai*.

O desenvolvimento da micose foi atribuído às condições climáticas da região e ao hábito do uso no cabelo, de substâncias oleaginosas de origem vegetal, muito freqüente entre os índios brasileiros.

Foram investigadas amostras de pelo de macacos, cães e gatos, com resultados negativos.

#### ACKNOWLEDGEMENT

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