

## PLANTS USED IN THE TREATMENT OF LEISHMANIAL ULCERS DUE TO *LEISHMANIA (VIANNIA) BRAZILIENSIS* IN AN ENDEMIC AREA OF BAHIA, BRAZIL

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*This paper records the plants used in the treatment of cutaneous leishmaniasis due to Leishmania (Viannia) braziliensis (L(V)b) among the rural population of a cocoa-producing coastal area of Bahia state, Brazil. An enquiry conducted among a hundred patients identified 49 plant species used to treat skin ulceration caused by this Leishmania species. The principal plants used are caju-branco (Anacardium occidentale - Anacardiaceae), used by 65% of the population, folba-fogo (Clidemia hirta - Melastomataceae) 39%, alfavaca-grossa (Plectranthus amboinicus - Lamiaceae) 33%, mastruz (Chenopodium ambrosioides - Chenopodiaceae) 31%, erva-de-santa-maria (Solanum americanum - Solanaceae) (25%) and transagem (Plantago major - Plantaginaceae) 2%.*

*Key-words: Cutaneous leishmaniasis. Leishmania (Viannia) braziliensis. Plant treatment.*

Três Braços (Cravolândia, BA) and Corte de Pedra (Tancredo Neves, BA) are in an endemic area of tegumentary leishmaniasis caused by *Leishmania (Viannia) braziliensis* (L(V)b)<sup>7 18</sup>. The principal treatment used is the pentavalent antimonial glucantime<sup>1</sup>. This drug is inconvenient to use, since has many toxic effects and is not always available.

Reports of the use of local plants for treatment are scarce in the literature. Melo et al<sup>10</sup> cited *Cephaelis ipecacuanha* (Brot.) A. Rich. (Rubiaceae) and Macedo<sup>9</sup> cites *Jacaranda brasiliana* Piers (Bignoniaceae). Netto et al<sup>16</sup> reported that many lesions in our study area were treated with plant products by local application. This report is an extension of this work. In view of the paucity of alternative therapy to pentavalent antimonials such an investigation is relevant.

### MATERIAL AND METHODS

The study area is composed of two villages, Três Braços and Corte de Pedra, with surrounding farms. Of the 15 farms studied in Três Braços for ten years, the four which presented the highest incidence of leishmaniasis

were selected, namely Sobradinho, Risada, Nova Esperança II and Baixinha. From the 8 farms surrounding Corte de Pedra a further four were selected in a similar manner, namely Julião I, Julião II, Recôncavo and Pataxó I. This selection was influenced by data relating to disease incidence<sup>5 7</sup> recorded in previous years.

Interviews among the population use a protocol designed after consulting reports of various previous workers<sup>3 6 17</sup>. Data regarding a history of leishmaniasis was confirmed for each family.

If a plant was being recommended for therapy its identity and mode of application was recorded. These interviews were performed in a cumulative manner in July 1989, January 1990 and July 1990. Subjects were selected who had a history of leishmaniasis and were over 15 years of age. Only the senior author collected and analysed all data.

### RESULTS

Of 100 subjects interviewed 55 used plants to treat the skin lesions. In one community (Corte de Pedra) significantly more people used plants than in the other village (Três Braços) ( $p < 0.15$ ). Older people (over 55 years of age) tended to use significantly more ( $p < 0.05$ ). As regards sex both men and women utilised plants but the men significantly more ( $p < 0.05$ ). The use of plants was linked to multiple lesion occurrence ( $p < 0.05$ ). The legs

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were the most affected part (66%). Fifty percent of patients abandoned plant therapy when glucantime became available. Forty-nine common names of plants used in leishmania therapy were identified in this study. Table 1 details the six most common plants recommended by more than 20% of the 55 plant users. Table 2 details the manner of use of these species.

In both areas more than 10% of population interviewed cited the following plants: cajueiro-branco (*Anacardium occidentale* L.), folha-fogo (*Clidemia hirta* L.), alfavaca-grossa (*Plectranthus amboinicus* (Lour.) Spreng.), mastruz (*Chenopodium ambrosioides* L.), erva-de-santa-maria (*Solanum americanum* Mill.) and transagem (*Plantago major* L.). In Três Braços cocó-bravo (*Xanthosoma cf. maximiliani*

Table 1 - Species used by more than 20% of 55 plant users.

Species	Common name	Patients who cited the plants	
		n <sup>o</sup>	%
<i>Anacardium occidentale</i>	cajueiro branco	34	65.4
<i>Clidemia hirta</i>	folha fogo	20	38.5
<i>Plectranthus amboinicus</i>	alfavaca grossa	17	32.7
<i>Chenopodium ambrosioides</i>	mastruz	16	30.8
<i>Solanum americanum</i>	erva de santa maria	13	25.0
<i>Plantago major</i>	transagem	12	23.1

Table 2 - Manner of use of plant derivatives at site of lesion.

Manner of local use	Species*					
	A. o.	C. h.	P. a.	C. a.	S. a.	P. m.
Bathing with boiled leaf extract		X	X	X	X	X
Dried leaf powder		X	X	X	X	X
Bathing with boiled bark extract	X					
Dried bark powder	X					
Poultice of raw leaves			X		X	
Poultice of leaf extract			X			
Paste of fresh leaves			X		X	

\* A. o. = *Anacardium occidentale*; C. h. = *Clidemia hirta*; P. a. = *Plectranthus amboinicus*; C. a. = *Chenopodium ambrosioides*; S. a. = *Solanum americanum*; P. m. = *Plantago major*.

Schott), malva-branca (*Sida cordifolia* L.) and pau d'arco (*Tabebuia cf. umbellata* (Sond.) Sandw.) were cited by 10% and in Corte de Pedra pinhão-roxo (*Jatropha gossypifolia* L.), pequi (*Caryocar edule* Casar) and fumo (*Nicotiana tabacum* L.).

Sometimes more than one species was used in same application. Local methods of application are detailed in Table 2. Systemic treatment was not noted.

## DISCUSSION

If a plant could be found with therapeutic activity against Lvb it would be useful as current therapy is unsatisfactory<sup>1</sup>. Even if it had only local activity it would be of value since there is evidence that the incidence of mucosal metastatic spread is low<sup>15</sup>.

In Três Braços there was less herbal use than in Corte de Pedra, which is not surprising in view of the existence of a health post in this village since 1974. Comparing the two villages we noted that 36% of the plants were used at both sites. In Corte de Pedra a wider spectrum was noted although in 56% of instances a single individual recommended the plant. Only 36% of isolated citations occurred in Três Braços where there was more of a consensus. Nation wide the number of such remedies must be large indeed.

Since the Três Braços community is more isolated 32% of people using plants did not seek professional help, but in Corte de Pedra where the health post function daily this number falls to 7%. However 45% of patients attending the latter post used plants as

additional treatment compared with 12% in Três Braços.

Interview data revealed that the longer the duration of the lesion the greater the use of plants. The same applied when lesions were multiple and widely distributed on the body. As shown previously more men than women acquire the disease<sup>7</sup>. Often up to three species were used in topical treatment. When subjects changes of treatment occurred, the apparent response was not good.

Only six plants were recommended by more than 20% of interviewed for local treatment. Of the plants mentioned in this paper only *Anacardium occidentale* L. and *Chenopodium ambrosioides* L. have been cited for use against leishmaniasis in the area<sup>16</sup>. *Plantago major* L. is a species much studied in Russia and Japan and used as an astringent, antipyretic etc<sup>11</sup> and for haemorrhoids<sup>2</sup>. *Solanum americanum* Mill. is used in diverse dermatoses such as eczema, psoriasis and skin trauma or infections<sup>14</sup>. *Clidemia hirta* L. was the plant preferred after cajueiro. Their fruits are edible and rich in vitamin C<sup>2</sup>. *Chenopodium ambrosioides* L. is a known anthelmintic very effective against ascariasis due to its high content of ascaridol<sup>11</sup>. It is also used as an abortifacient and for digestive effects<sup>2</sup>.

*Anacardium occidentale* L. nut extract was the most widely used. It contains corrosive substances and has been used in other diseases such as leprosy, psoriasis, eczema and warts<sup>2 8 13</sup>. Other parts of the plant have medicinal uses<sup>12</sup>.

Elsewhere we presented our results of testing extracts of *Anacardium occidentale* L. bark in laboratory experiments with Lvb *in vivo*<sup>4</sup>. This extract showed high activity in the *in vitro* model against promastigote of this species. However in the *in vivo* model no curative activity was observed in the hamster.

## RESUMO

Este trabalho relata as plantas usadas no tratamento da leishmaniose cutânea, causada por *Leishmania* (*Viannia*) *braziliensis* (LVB), na população rural da faixa litorânea produtora de cacau do estado da Bahia, Brasil. Um inquérito realizado entre 100 pacientes, identificou 49 espécies de plantas usadas para tratar úlceras de pele causadas por esta espécie de Leishmânia. As principais plantas usadas foram o cajueiro-branco

(*Anacardium occidentale* - *Anacardiaceae*) usado por 65% da população, a folha-fogo (*Clidemia hirta* - *Melastomataceae*) 39%, a alfavaca-grossa (*Plectranthus amboinicus* - *Lamiaceae*) 33%, o mastruz (*Chenopodium ambrosioides* - *henopodiaceae*) 31%, a erva-de-santa-maria (*Solanum americanum* - *Solanaceae*) 25% e a transagem (*Plantago major* - *Plantaginaceae*) 2%.

*Palavras-chaves:* Leishmaniose cutânea. *Leishmania* (*Viannia*) *braziliensis*. Tratamento com plantas.

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