

SCREENING OF INDIGENOUS PLANTS FOR ANTHELMINTIC ACTION AGAINST HUMAN *ASCARIS LUMBRICOIDES* : PART—II

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Summary: Alcoholic extracts of the rhizomes of *Alpinia galanga*, *Andrographis paniculata*, bark of *Cinnamomum zeylanicum*, rind of *Citrus decumana*, *Desmodium triflorum*, seeds of *Hydnocarpus wightiana*, rhizomes of *Kaempferia galanga*, *Lippia nodiflora*, tender leaves of *Morinda citrifolia*, rhizomes of *Polka serzogonian*, *Tephrosia purpuria* and rhizomes of *Zingiber zerumbeth* showed good in vitro anthelmintic activity against human *Ascaris lumbricoides*. While, the alcoholic extracts of the bark of *Albizia lebbek*, the bulb of *Allium sativum*, rhizomes of *Alpinia calcaratta*, rind of *Citrus acida*, rind of *Citrus aromaticum*, rind of *Citrus medica*, rhizomes of *Curcuma aromatica* and rind of *Punica granatum* showed moderate invitro activity.

Key words: plant extracts

anthelmintic activity

Ascaris lumbricoides

INTRODUCTION

This is the second part of a series of four articles on the screening of Indian Medicinal Plants for anthelmintic action against the human parasitic nematode *Ascaris lumbricoides*. The first part of this appeared in the April-June issue of the Indian Journal of Physiology and Pharmacology, 1974. In this article, the result of the evaluation of another 45 plants reported to be active in literature (2,3,4) is presented.

MATERIALS AND METHODS

Medicinal plants available locally, in the country side and forest areas were used for the investigation. These were identified by a Botanist. The drugs were used in the form of air-dried and crushed or powdered samples, depending on their nature. The amount of material used and the manner in which the extracts prepared were as described in the previous communication (1). 50 gm of the dried plant material was weighed and soaked in ethanol. Sufficient ethanol was added to completely immerse the plant material. This was then left at room temperature for 24 hr., filtered and the extraction repeated once again for another 24 hr with fresh ethanol. The two extracts were then mixed, concentrated and dried under vacuum. The solid or semi-solid mass obtained in each case was used for the experiment. Unlike in the previous instance, in the present investigation the above masses were suspended in 50 ml water, neutralised with solid sodium bicarbonate wherever necessary and mixed with 50 ml of 2N modified tyrode solution (Ingredients of the ordinary tyrode solution taken in double the

TABLE I: Effects of the extracts of plants on human *Ascaris lumbricoids* in vitro.

No.	Plant	Parts	Activity		
			Stimulation	Paralysis	Death
1.	Achyranthes aspera	whole	—	—	—
2.	Agati grandiflora	seed	—	+	—
3.	Ailanthus malabarica	bark	—	—	—
4.	Albizia lebbek	bark	—	++	♣
5.	Allium sativum	bulb	—	+++	♣
6.	Alpinia calcaratta	rhizome	—	++	♣
7.	Alpinia galanga	rhizome	—	+	+
8.	Alstonia scholaris	bark	—	+	—
9.	Andrographis paniculata	whole	—	++	+
10.	Andropogon citratus	whole	—	+	—
11.	Canthium parviflorum	root	—	++	—
12.	Cassia accidentalis	root	—	—	—
13.	Cinnamomum zeylanicum	bark	—	++	+
14.	Citrus aromatum	rind	+	+++	♣
15.	Citrus aromatum	rind	—	++	+
16.	Citrus decumana	rind	—	++	♣
17.	Citrus medica	rind	—	++	♣
18.	Clitoria ternatea	root	+	+	+
19.	Costus speciosus	rhizome	—	++	—
20.	Curcuma aromatics	rhizome	—	++	♣
21.	Desmodium triflorum	whole	—	+++	++
22.	Evolvulus alsinoides	whole	—	—	—
23.	Ficus delhouisiae	bark	—	—	—
24.	Hydnocarpus wightiana	seed	+	++	++
25.	Indigofera tinctoria	root	—	+	—
26.	Ionidium suffruticosum	whole	—	—	—
27.	Kaepferia galanga	rhizome	+	+++	++
28.	Lippia nodiflora	whole	—	++	♣
29.	Melia azadirachta	seed	—	++	—
30.	Meliosma wightii	bark	—	—	—
31.	Morinda citrifolia	tender leaf	—	+++	+
32.	Pollia serzagoniari	rhizome	—	++	+
33.	Pseudarthria viscida	whole	—	—	—
34.	Psoralea corylifolia	seed	+	+	—
35.	Pterocarpus marsupium	bark	—	+	—
36.	Punica granatum	rind	—	++	♣
37.	Saraca indica	bark	—	++	—
38.	Semecarpus anacardium	seed	—	—	—
39.	Spermocoe hispida	whole	—	—	—
40.	Stereospermum chelonoides	bark	—	—	—
41.	Strychnos bourdillonii	stem	—	—	—
42.	Tephrosia purpurea	whole	—	++	+
43.	Terminalia tomentosa	bark	—	+	—
44.	Tribulus terrestris	seed	+	++	—
45.	Vitex trifolia	leaf	—	—	—
46.	Zingiber zerumbeth	rhizome	—	++	+

Stimulation + initial increased movements

Paralysis + both paralysed in 24 hr; ++ both paralysed 18 hr.
+++ both paralysed 12 hr.Mortality + both dead 24 hr, ++ both dead 18 hr.
♣ one dead and more one completely paralysed

(—) indicates lack of any effect.

normal requirement). The worms were collected and used as reported in the previous communication (1).

RESULTS AND DISCUSSION

The result obtained from a study of 45 plants is presented in Table I. Of the drugs screened *Alpinia galanga*, *Andrographis paniculata*, *Cinnamomum zeylanicum*, *Citrus decumana*, *Desmodium triflorum*, *Hydnocarpus wightiana*, *Kaempferia galanga*, *Lippia nodiflora*, *Morinda citrifolia*, *Polia serzoganian*, *Tephrosia purpuria* and *Zingiber zerumbeth* are very active and *Albizzia lebbek*, *Allium sativum*, *Alpinia calcaratta*, *Citrus acida*, *Citrus aromatum*, *Citrus medica*, *Curcuma aromatica* and *Punica granatum* are moderately active under the experimental condition described (1).

The screening of all the locally available members of the zingiberaceae family, 8 in number have been completed with this paper. They are : *Alpinia calcaratta*, *Alpinia galanga*, *Costus speciosus*, *Curcuma aromatica*, *Curcuma longa* (1), *Kaempferia galanga*, *Zingiber officinale* (1), and *Zingiber zerumbeth*. A comparison indicates that *Kaempferia galanga* is the most active member of the family and *Curcuma calceratta* the least. Study is in progress to establish the fact, whether the anthelmintically active material(s) present in the members of this family is one that is already isolated and reported or is yet to be isolated and characterized. Same is the case with the rinds from the members of the Citrus family, which also show promise for further work. The members are : *Citrus acida*, *Citrus aromatum*, *Citrus decumana* and *Citrus medica*. Though these are not as active as the members of the Zingiber family, they deserve special mention because of the cheap nature of the source.

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