

**ANTHELMINTIC ACTIVITY OF SOME EXISTING  
POLYHERBAL AYURVEDIC FORMULATIONS**

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**Summary**

Ingredients from various polyherbal Ayurvedic formulations viz. Krimikuthar Ras, Sanjivani Vati, Bhallatkasava, Kumariasava and Vidangarishta were screened for anthelmintic activity in vitro on *Pheritima posthuma*. Results showed that the ingredients viz. *Z. officinale*, *P. longum*, *C. mukul*, *C. longa*, *A. sativum*, *T. chebula*, *F. foetida* and sulphur if present in combination showed best anthelmintic activity and also produced synergistic activity with other ingredients.

**Key words:** Ayurvedic formulations, anthelmintic activity, *Pheretima posthuma*.

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## Introduction

In the Ayurvedic system of medicine many polyherbal formulations are being prescribed for anthelmintic action because, some of the ingredients of the formulation is having anthelmintic activity. The anthelmintic activity of these formulations has not been evaluated experimentally to understand the effect of various ingredients in combination. Herewith we are comparing anthelmintic activity of ingredients of five polyherbal Ayurvedic formulations, viz. Krimikuthar ras, Sanjivani vati, Bhallatkasava, Kumariasava and Vidangarishta, which are prescribed for anthelmintic action.

Kumari asava contains *Aloe vera* and *Terminalia chebula* as major constituents. Krimikuthar ras contains *Zinziber officinale*, *Piper nigrum*, *Piper longum*, *Terminalia chebula*, *Acorus calamus*, *Embelica ribs*, *Commiphora mukul*, *Curcuma longa*, *Allium sativum*, *Acacia catechu*, *Ferula foetida* and sulphur as major ingredients. Bhallatkasava contains *Semicarpus anacardium*, *Terminalia chebula* and *Tinospora cordifolia* as major constituents. Sanjivani vati contains *Embelica ribs*, *Zinziber officinale*, *Piper longum*, *Terminalia chebula*, *Terminalia belerica*, *Acorus calamus* and *Tinospora cordifolia* as major constituents. Vidangarishta contains *Embelica ribs*, *Piper longum*, *Allium sativum* and *Tamirandus indica* as major constituents.<sup>1,2</sup>

The aim of present study is to find out potent anthelmintic agents and their effect in combination.

## Materials and methods

### Extraction

Five polyherbal Ayurvedic formulations prescribed for anthelmintic activity were selected viz. Krimikuthar ras, Sanjivani vati, Bhallatkasava, Kumari asava and Vidangarishta and were procured from an Ayurvedic medical store. The liquid dosage forms viz. Krimikuthar ras, Bhallatkasava, Kumari asava and Vidangarishta formulations were concentrated and dried by vacuum distillation. The tablet dosage form i.e. Sanjivani vati was extracted exhaustively with ethanol using Soxhlet apparatus. Extract was concentrated and dried by vacuum distillation. The dried extracts of all the formulations were screened for anthelmintic activity as described below. From the results obtained, three most potent formulations were combined in 1:1 ratio viz. Krimikuthar ras, Sanjivani vati and Kumari asava and again screened for anthelmintic activity.

### Anthelmintic Activity

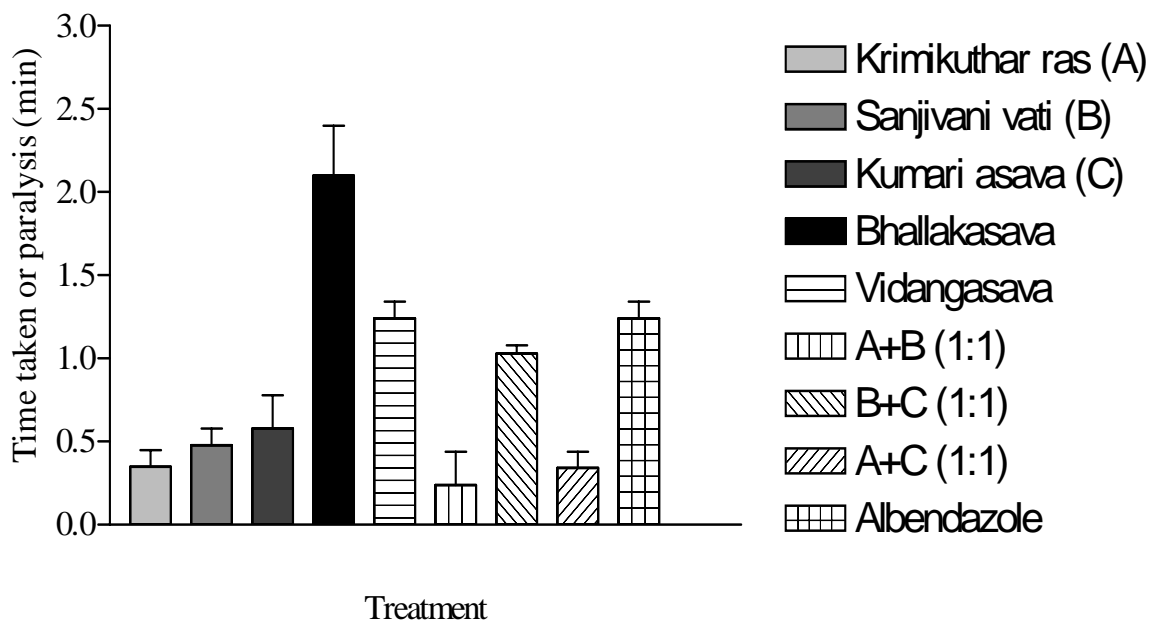
The anthelmintic activity was carried out on adult Indian earthworms, *Pheritima posthuma*<sup>3</sup> in view of its anatomical and physiological resemblance with the intestinal roundworm parasites of human beings.<sup>4,5</sup> Ten groups each containing six earthworms of approximately equal size were released into 10 ml of desired formulation. Each group was treated with one of the following, vehicle (5% DMF in normal saline), albendazole or Krimikuthar ras (A) or Sanjivani vati (B) or Kumari asava (C) or Bhallatkasava or Vidangarishta or A+B (1:1) or B+C (1:1) or A+C (1:1) (20 mg/ml, each) in normal saline containing 5% DMF. Observations were made for the time taken for paralysis and death of individual worms.

### Result and Conclusions

Results showed that, amongst five formulations Krimikuthar ras showed best activity followed by Sanjivani vati and then Kumari asava than the standard drug albendazole, while Vidangasava showed comparable activity with albendazole. Bhallatkasava showed least activity. Three most probable combinations of the most potent formulations viz. Krimikuthar ras, Sanjivani vati and Kumari asava was done in order to search potent ingredients and their interactions and again screened for anthelmintic activity. Results showed that combination of 'Krimikuthar ras and Sanjivani vati' showed best activity than combination of 'Krimikuthar ras and Kumari asava' followed by combination of 'Sanjivani vati and Kumari asava'. From this we can conclude that ingredients of Krimikuthar ras produce synergistic action with ingredients of Sanjivani vati and Kumari asava. But the ingredients of Sanjivani vati and Kumari asava are not producing synergistic effect with each other (Fig. 1 and 2).

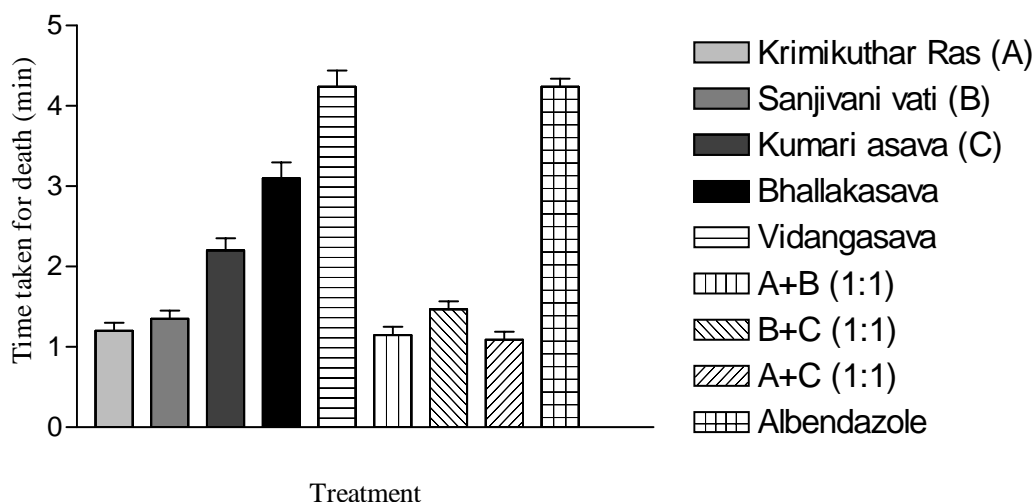
Observations showed that Krimikuthar ras is having *Z. officinale*<sup>6</sup>, *P. longum*<sup>7</sup>, *C. mukul*<sup>8</sup>, *C. longa*<sup>9</sup>, *A. sativum*<sup>10</sup>, *T. chebula*<sup>11</sup>, *F. foetida*<sup>12</sup> and sulphur<sup>13</sup> as additional ingredients than the ingredients of Sanjivani vati and Kumari asava. These ingredients are having good anthelmintic activity, so they might be producing potent activity in formulation as well synergistic activity in combination with ingredients of other formulations.

**Fig. 1** Time required for paralyzing earthworms by various Ayurvedic formulations and their combinations.



All the values are expressed as mean  $\pm$  SEM. Control worms were alive up to 24 hrs.

**Fig. 2** Time required for killing earthworms by various Ayurvedic formulations and their combinations.



All the values are expressed as mean  $\pm$  SEM. Control worms were alive up to 24 hrs.

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