



Dr. P.T.Ramesh  
M.V.Sc (Med)., Ph.D  
Professor & Head

Department of Veterinary Medicine,  
Veterinary College, Hebbal,  
Bangalore – 560 024  
91-080-23412556



## Evaluation of clinical efficacy of Herbal product-KANNEL SPRAY on dogs as Ectoparasitidal agent.

### Abstract:

The efficacy of herbal ectoparasiticide KANNEL SPRAY was evaluated in-vivo and in-vitro against ectoparasites of 40 dogs. The formulated concentration was effective in controlling ectoparasites at 12-16 kennel spray, at twice/week application. Effective in killing Fleas, Ticks and Mites at 15min, 72hr, and 8hr of exposure respectively.

**Key words:** Kannel spray, ectoparasites, Dogs.

### Introduction:

Ectoparasites(Ticks, Fleas, Lice) and Mites are most frequent cause of dermatological problems in dogs , also involved in transmission of many diseases from infected one to susceptible ones. Chemical insecticides have been widely used against ectoparasites, but their toxicity to animals, man & environment, as well as diminishing efficacy due to development of resistance have led to continuing search for safe, effective and eco-friendly alternative approaches. Hence efficacy of Herbal ectoparasiticide Product KANNEL SPRAY was assessed in-vivo & in-vitro against commonly occurring ectoparasites of dogs and results were recorded.

### Materials and Method:

A total of 40 dogs infested with ectoparasites (Fleas, Ticks, and Mites) presented to veterinary college hospital Hebbal, Bengaluru with following clinical manifestations viz, alopecia, itching, pruritus were selected for the study. KANNEL SPRAY was used for spraying to surrounding environment/kennels, and owners were advised not to allow their pet to have access to this area for duration of one hour after spraying. The criteria for the evaluation of efficacy of the product included the visual examination for reduction in number of ectoparasites in kennels/environment as per owner observational report, and reduction in the clinical manifestation of alopecia, itching, irritation and general improvement in health of animals. All observations were recorded through phone call to owners.





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Effect of KANNEL SPRAY against adult ticks was studied in-vitro, and percent paralysis and mortality observations are recorded at 0hr, 24hr, 48hr, 72hr, and 96hr, after treatment. Different batches (10 fleas/batch) of dog fleas from fleas infested dogs collected were exposed by transferring them to vials which were freshly coated with Kannel spray, and percent paralysis and mortality were recorded at 0min, 5min, 10min, 15min and 20min following exposure. Dogs infested with Mange/Mites, their skin scrapings were collected (10mites/group), and these were exposed to Kannel spray, later Mange/Mites paralysis and mortality were recorded after 0hr, 2hr, 4hr, 6hr and 8hr after exposure under microscope.

Control group with plain water exposure were kept for each batch/group of ectoparasites during study period.

### Results & discussion:

In the present study total of 40 Dogs were included. Out of 40, eleven were Labrador Retriever, ten were N/D, two were cocker-spaniel, seven were GSD, six were Pomeranian and three dogs were pug breeds.

Out of 40 dogs 17 were female, 23 were male dogs. Female dogs were applied with 8 to 16 number of kennel application, while Male dogs with 10 to 18 number of kennel application.

Age group of Labrador were in range of 42 days to 11yr, and age group of N/D were in range of 2 to 8 yr. Cocker-spaniel were in 2 to 4 yr age group, and German shepherd age group were in range of 10 month to 15 yr. Pomeranian dogs were in 2 to 12 yr age group.

In Labrador breed all dogs were infested with Fleas, Ticks and Mites. German shepherd was infested with Fleas, Ticks and Mites, while N/D was infested with Fleas and Ticks. Pomeranian dogs were infested with Ticks, Mites and Fleas and Pug were infested with Fleas and Ticks.

In Labrador number of application to kennel were ranging from 10 to 18, while in German shepherd number of kennel application were in





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application were in range of 8 to 14. In Cocker-spaniel breed kennel application were 14 to 16, and in pug number of kennel application were in range of 14 to 18. On an average every breed of dog which were included in study received a range of 10-19 spray application.

42day to 2yr age group were applied with 12 to 14 number of kennel application, and 2yr to 4 yr age group dogs were applied 12 to 14 number of kennel application.

5 yr to 8 yr age group dogs were applied with 11 to 14 number of kennel application,

while 9 yr to 10 yr age group were applied with 16 to 18 number of kennel application.

11yr to 12yr age group were applied with 12 to 16 number of kennel application ,and

13yr to 15yr age group with 14 to 18 number of kennel application. On an average every age group which were tested received kennel spray ranging from 12 to 18 application.

**Table; 1. Degree of parasite infestation and effective number & interval of application.**

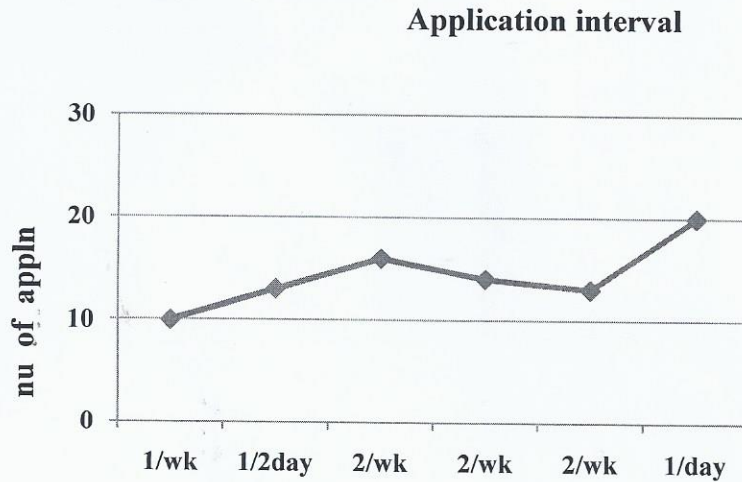
Degree of infestation	Effective number of application	Effective application interval
Fleas	10	Once a week
Ticks	13	Once in two- days
Mites	16	Twice a week
Fleas + Ticks	14	Twice a week
Ticks + Mites	13	Twice a week
Fleas + Ticks + Mites	20	Every alternate Day





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(b)

**Graph: A-(a), (b):** Represents effective application number at different application interval

**Table, 2: In vitro effect of KANNEL SPRAY on Ectoparasites of dog.**

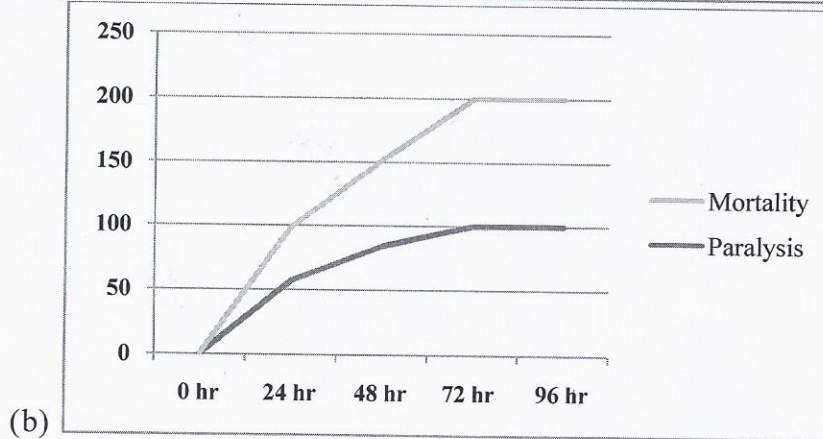
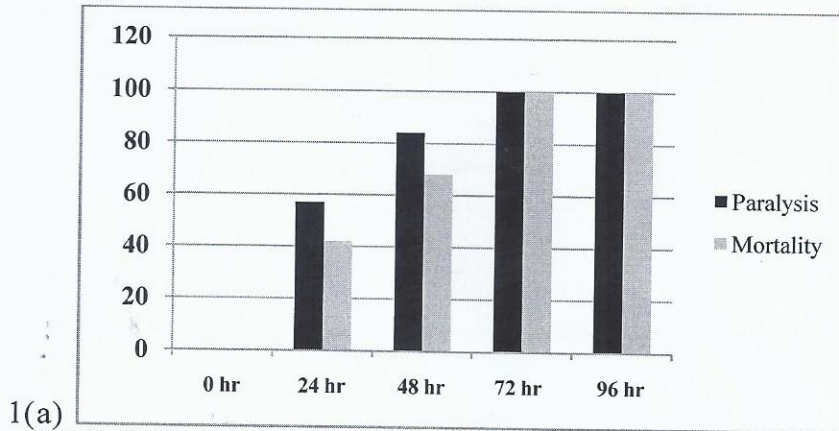
<b>Ticks</b>	<b>Time (hr)</b>	<b>0</b>	<b>24</b>	<b>48</b>	<b>72</b>	<b>96</b>
	<b>Paralysis (%)</b>	0	57	84	100	100
	<b>Mortality (%)</b>	0	42	68	100	100
<b>Fleas</b>	<b>Time (min)</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>
	<b>Paralysis (%)</b>	0	27	63	100	100
	<b>Mortality (%)</b>	0	54	92	100	100
<b>Mites</b>	<b>Time (hr)</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>
	<b>Paralysis (%)</b>	0	41	78	100	100
	<b>Mortality (%)</b>	0	18	37	69	100



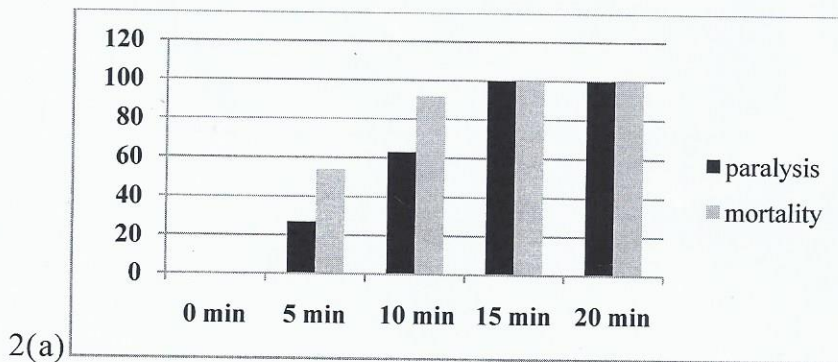


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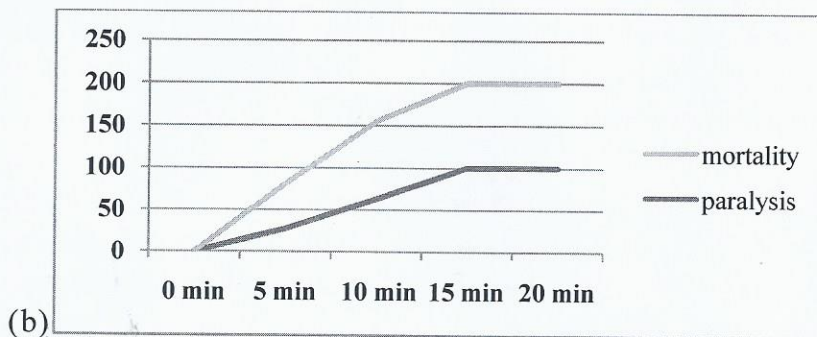
**Graph: 1 (a), (b),** Represents in vitro tick paralysis & mortality at different Time interval.



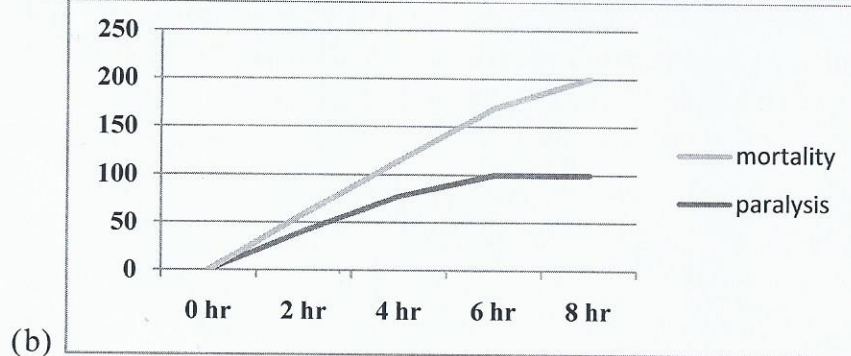
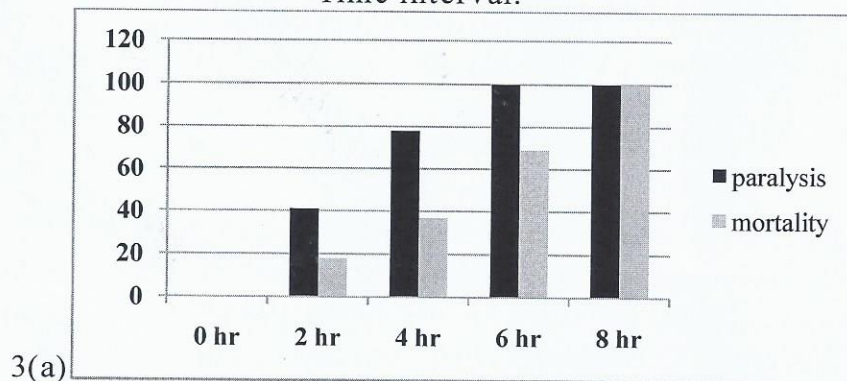


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Graph: 2(a), (b), Represents in vitro Fleas paralysis & mortality at different Time interval.



Graph: 3(a), (b), Represents in vitro Mites paralysis & mortality at different Time interval.





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Many owners were opined that KANNEL SPRAY was effective in control of ticks and fleas at 13 to 16 applications at twice a week spraying intervals for spraying kennels, with maintenance spray every month.

KANNEL SPRAY has resulted in 84% paralysis, 68% mortality at 48hr of in-vitro exposure, and 100% paralysis, 100% mortality of ticks after 72hr of exposure. 63% of fleas were paralyzed with 92% death at 10 min of exposure, and 100% paralyzed and died at 15 min after exposure to KANNEL SPRAY in-vitro.

At 4 hr of exposure of mites to KANNEL SPRAY in-vitro, 78% of mites paralyzed, 37% died. After 6 hr of exposure 100% paralysis and 69% mortality observed, with 8 hr of exposure 100% paralysis, mortality was noticed.

**Conclusion:**

In present study 40 Dogs of different age, sex and breed were selected. Upon usage of formulated concentration of herbal ectoparasiticide KANNEL SPRAY, it was found to be effective in control of Ticks, Fleas, and Mites at an average of 13 to 16 KANNEL SPRAY, with twice-a-week application interval. The results were supported by In-vitro study of KANNEL SPRAY, that formulated concentration of product was effective in killing Fleas, Ticks and Mites at 15min, 72hr and 8hr of exposure respectively.

  
Professor & Head  
Department of Medicine  
KVAFSU, Veterinary College  
Hebbal, Bangalore - 560 024