



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- YESPRAY on dogs as Ectoparasiticide agent.

### Abstract:

The efficacy of Herbal ectoparasiticide YESPRAY was evaluated in-vivo and in-vitro against ectoparasites of 40 dogs. The formulated concentration was effective in controlling ectoparasites at 12-14 body spray, at twice/week application. Effective in killing Fleas, Ticks and Mites at 15min, 72hr, and 8hr of exposure respectively.

**Key words:** Yespray, ectoparasites, Dogs

### Introduction:

Ectoparasite infestation in dogs and human residential places is serious problem. The ectoparasites(Ticks, Fleas) and Mites not only inflict direct damage to Dogs by causing severe itching, dermatitis and blood loss, are also responsible for transmission of Zoonotic protozoan, bacterial and viral diseases of man and animals. A number of synthetic parasiticides have been tried for the ectoparasites with variable efficacy and toxicity. The synthetic parasiticides residues are of serious environmental concern leading to pollution and health hazards to man and animals. Hence the efficacy of Herbal ectoparasiticide Product YESPRAY was assessed in-vivo and in-vitro against commonly occurring ectoparasites of dogs and results were recorded

### Materials & method:

A total of 40 dogs of different age group, sex, and breeds that are naturally infested with ectoparasites(Fleas, Ticks,) and Mites, presented to veterinary college hospital Hebbal, Bengaluru with following clinical manifestation viz, Alopecia, itching, pruritus were selected for the study. At the formulated concentration of YESPRAY was used for spraying on the body of the animals selected for study, and owners are advised not to bath/wash the pet for one/two days after spraying YESPRAY at different intervals. The criteria for the evaluation of efficacy of the product included the visual examination for reduction in number of ectoparasites on the body of the animals, and reduction in the symptoms of alopecia, itching, irritation and general improvement in health of animals. All observations were recorded at different number and interval of application of the product.





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Acaricidal effect of YESPRAY against adult ticks was studied in vitro, and observations are recorded at 0hr, 24hr, 48hr, 72hr, and 96hr, after treatment for percent paralysis and mortality. Different batches (10 fleas/batch) of dog fleas collected were exposed by transferring them to vials which were freshly coated with YESPRAY, 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 YESPRAY, later. Mange/Mites paralysis and mortality were recorded after 0hr, 2hr, 4hr, 6hr and 8hr after exposure under microscope.

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

**Results & Discussion: Table 1: Effectiveness of YESPRAY**

Degree of infestation	Effective number Of applications	Effective application interval
Fleas	10	Once a week
Ticks	11	Once in two- days
Mites	14	Twice a week
Fleas + Ticks	12	Twice a week
Ticks + Mites	16	Twice a week
Fleas + Ticks + Mites	18	Every alternate Day

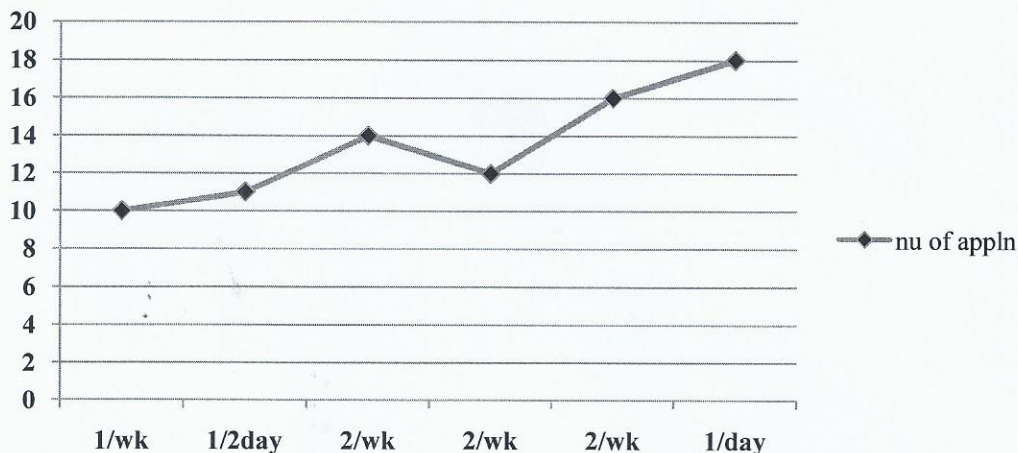






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(b)

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

Table 2: Effect of YESPRAY on alopecia, itching, degree of parasites,

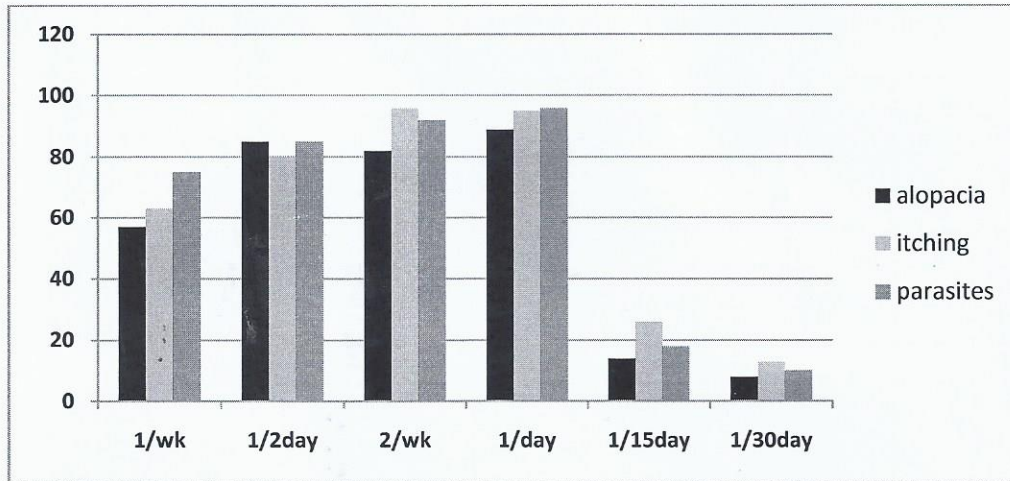
Application interval	Percent reduction		
	Alopecia	Itching	Parasites
1/week	57	63	75
1/2day	85	80	85
2/week	82	96	92
1/day	89	95	96
1/15day	14	26	18
1/30day	08	13	10





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**Graph-B,** Represents reduction in Alopecia, Itching, and parasites at different application intervals.

Age group	≤1yr	2-3yr	4-6yr	7-9yr	10-12yr	≥13yr
Effective number of applications	14	12	13	15	13	15
Effective application interval	2/wee k	2/wee k	1/2da y	1/2da y	1/2day	1/2day

Sex	male	Female
Effective number of applications	12	14
Effective application interval	2/week	2/week

Breed of Dog	N/D	Lab	Pom	Pug	Gsd	C/B	C/sp	others
Effective number of applications	11	13	13	18	12	13	17	12
Effective application interval	2/wee k	2/wee k	1/2da y	2/wee k	1/2da y	2/wee k	2/wee k	2/wee k





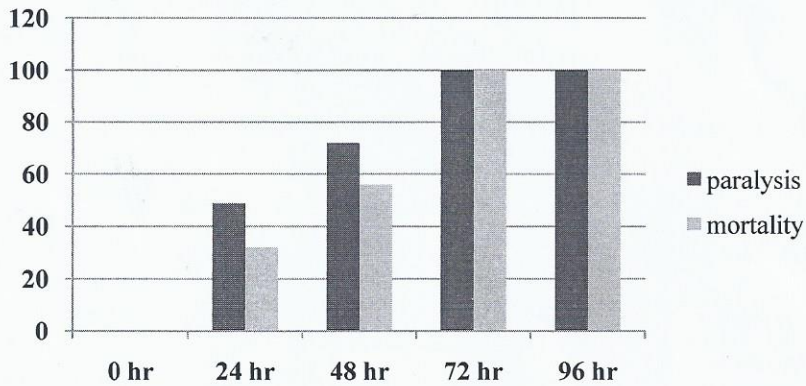


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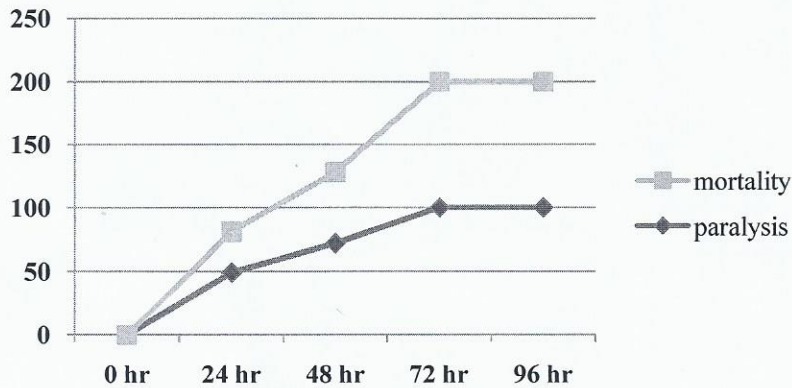
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Table, 3: In vitro effect of YESPRAY on Ectoparasites of dog.

Ticks	Time (hr)	0	24	48	72	96
	Paralysis (%)	0	49	72	100	100
	Mortality (%)	0	32	56	100	100
Fleas	Time (min)	0	5	10	15	20
	Paralysis (%)	0	22	51	100	100
	Mortality (%)	0	42	85	100	100
Mites	Time (hr)	0	2	4	6	8
	Paralysis (%)	0	39	67	100	100
	Mortality (%)	0	12	33	57	100



1(a)



(b)

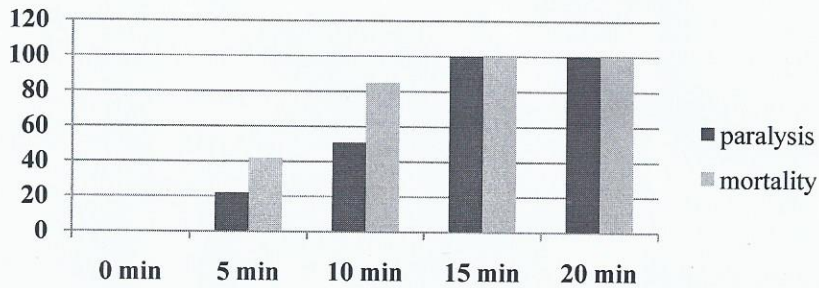
Graph: 1 (a), (b), Represents in vitro tick paralysis & mortality at different Time interval



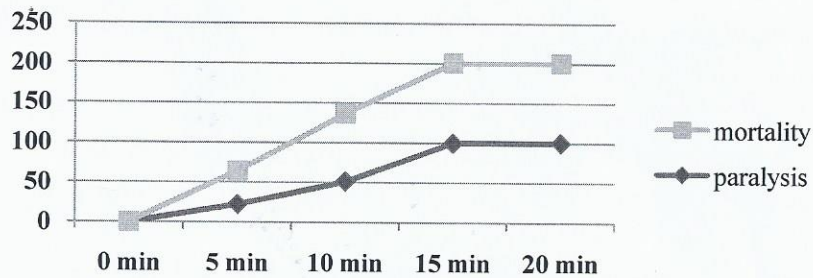


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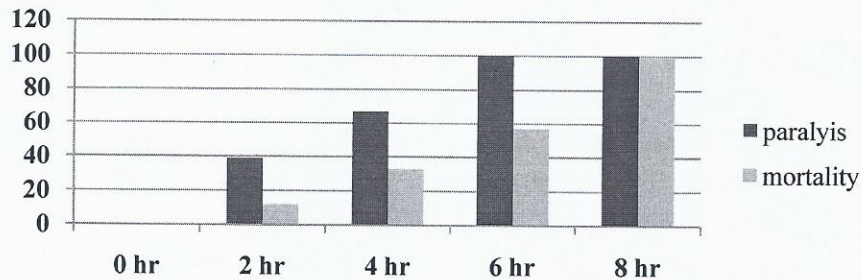


2(a)

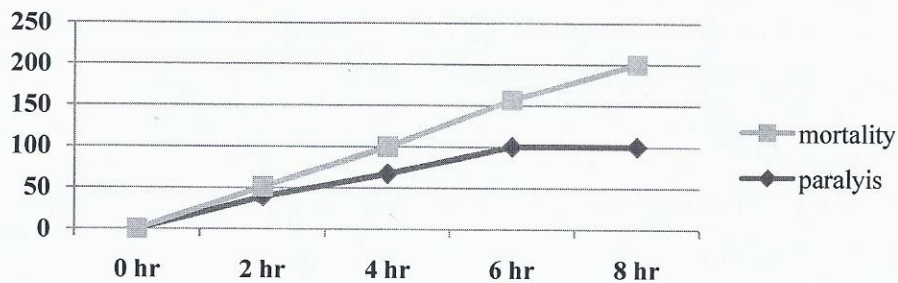


(b)

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



3(a)



(b)

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







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At formulated concentration of YESPRAY as body spray, 12 to 14 number of applications at 2 sprays per week (Table-1), gives effective control of both Ticks and Fleas. Since mites are localized in skin layers its control requires more frequent applications at lesser duration of intervals.

Application of YESPRAY everyday, and twice a week has resulted in 89%, 95%, 96% and 82%, 96% , 92% reduction in alopecia, itching and number of parasites respectively (Table-2). with improvement in health condition of the treated animals.

Young age group dogs were well tolerated with application of YESPRAY with no toxicity symptoms at given formulation of the product. With advancement of age and growth of animal more number of applications were required with frequent intervals.

Thick haired breeds ( German Shepherd, golden retriever, Pomeranian, cocker spaniel) require frequent interval, more number of YESPRAY compared to less(coarse) haired breeds (N/d, Labrador, pug).As thick hair may interfere with effective contact of product with parasite.

After 24 hr exposure of YESPRAY to Ticks in-vitro, (Table-3) 49% paralysis, with 32% mortality was seen. At 48hr and 72hr of exposure 72% paralysis, 56% mortality and 100% paralysis, and 100% mortality was noticed respectively.

At 5 min of exposure of YESPRAY to fleas (Table-3) 22% paralyzed, with 42% death. 100% paralysis and 100% mortality was observed at 15 min of exposure. The YESPRAY resulted into 39% paralysis, and 12% mortality of mites at 2hr of exposure, with 67% paralysis, 33% death at 4hr, and 100% paralysis at 6hr, 100% mortality at 8hr of exposure.

No paralysis and death were noticed in control group/batch of ectoparasites treated with plain water.

In order to reduce reliance on synthetic ectoparasiticides, there is need to diversify and evaluate eco-friendly compounds of plant origin. The efficacy of herbal





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formulations against mange in dogs and other ectoparasites in dogs has earlier been reported.

Relatively longer exposure is required in comparison to synthetic chemicals. This may be viewed that plant based ectoparasiticides are not contact poisons but act through multiple modes of action. Though the action of YESPRAY in killing ectoparasites is somewhat delayed, owners are opined that prolonged contact with the formulation is neither a discomfort nor a toxicity risk unlike chemical ectoparasiticides

**Conclusion:**

In present study 40 Dogs of different age, sex and breed were selected. Upon usage of formulated concentration of herbal ectoparasiticide YESPRAY as body spray, it was found to be effective in control of Ticks, Fleas, and Mites at an average of 12 to 14 body spray, with twice-a-week application interval, with reduction in clinical Manifestations (alopecia, irritation and pruritus), and without any toxicity symptoms in younger group dogs. The results were supported by In-vitro study of YESPRAY, 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