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**EVALUATION EFFECT OF *ECHINOPHORA PLATYLOBA* EXTRACT ON
TREATMENT OF DOGS WITH DERMATOPHYTOSIS**

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ABSTRACT

The two main species of veterinary interest are *Microsporum* and *Trichophyton* and these are found worldwide. They are usually secondary invaders and are able to penetrate all layers of skin, but are generally restricted to the keratin layer and its appendages. Therefore the condition is most often seen in subcuticular or cutaneous sites. There are certain types of dermatophytes: *Microsporum* is zoophilic and so parasites of animals, *Trichophyton* is geophilic and inhabits soil but will also parasitize animals. *Epidermophyton* is anthropophilic and so is a parasite of people. *Microsporum canis* is the most common dermatophyte to infect small animals and will be the cause of 90% of feline infections and 60% of canine infections. Fortunately in recent years using of medical herbs is increasing in case that now about one third to half of existing medicines in USA has herbal resources. Recently, regarding to its side effects and its strength on pathogenic microorganisms against antibiotics, so in medical field, its extracts has been attended more with its biological properties. Plant components with anti microbial properties are accounted as valuable resources in medicine and they can be beneficial in treating the septic diseases. This study is going to examine the anti dermatophytic properties of *Echinophora platyloba* essence plant on treatment of dogs with dermatophytosis. In the study, which lasted for 3 years, animals suspected of dermatophytosis were studied at several centers. Treatment method was based on it that first hair of waste area was shaved with scissor and additional shells were removed with scalpels. Then on the waste of dogs with dermatophytosis twice daily for 15 days solution of *Echinophora platyloba* with swap was applied. According to results, the main cause of ringworm in dogs under test was

Microsporum canis and *Echinophora platyloba* extract show full recovery in 50% of animal under treatment. 50% of animals showed full recovery in comparison with the control group was significantly reported ($p < 0.05$). Thus, probably the noted *Echinophora platyloba* has inhibitory effects on experimental fungus growth.

Keywords: *Echinophora platyloba*, Dogs, Dermatophytosis

INTRODUCTION

Many skin diseases such as tinea and ringworm caused by dermatophytes exist in tropical and semitropical areas. Dermatophytes are pigmented; saprophytic organisms called Phaeohyphomycetes and were previously called 'Fungi Imperfecti'. The two main species of veterinary interest are *Microsporum* and *Trichophyton* and these are found worldwide. They are usually secondary invaders and are able to penetrate all layers of skin, but are generally restricted to the keratin layer and its appendages. Therefore the condition is most often seen in subcuticular or cutaneous sites. A lack of tolerance to body temperature and antifungal activity in serum and body fluids prevent the fungi invading subcutaneously. Dermatophytes are transmitted by direct or indirect contact e.g. on brushes, fomites etc. Signs vary in severity, but immunocompromised hosts may develop systemic infections. There are certain types of dermatophytes: *Microsporum* is zoophilic and so parasites of animals, *Trichophyton* is geophilic and inhabits soil but will also parasitise animals. *Epidermophyton* is anthropophilic and so is a parasite of people.

Microsporum canis is the most common dermatophyte to infect small animals and will be the cause of 90% of feline infections and 60% of canine infections. *Trichophyton mentagrophytes* affects around 30% of dogs, especially Terrier breeds. *Trichophyton verrucosum* causes most cases in cattle and sheep and *Trichophyton equinum* is the commonest cause in horses. About 25% of wild hedgehogs are carriers of *Trichophyton erinacei* which can also infect dogs and humans. Fortunately in recent years using of medical herbs is increasing in case that now about one third to half of existing medicines in USA has herbal resources [1] Also in England, herbal productions and herbal supplements are increases [2]. In addition to Micro biologists are so intended to uses in comparative with herbal drugs, significantly [3]. Genus *Echinophora*, of family Apiaceae, having 4 species in Iran distributed in the west and western north of Iran [4]. Species *E.platyloba* is known by local names of Khosharize, Tigh Touragh, Tigh Masti, Koshander, Kouzang, Tanghez or Khousharouze. This plant is a native in Iran and is being studied for the first time

[5]. This plant is used for scenting the foods in Kermanshah, so it is of pasture plants [6]. Recently, regarding to its side effects and its strength on pathogenic microorganisms against antibiotics, so in medical field, its extracts has been attended more with its biological properties. Plant components with anti microbial properties are accounted as valuable resources in medicine and they can be beneficial in treating the septic diseases. This study is going to examine the anti dermatophytic properties of Khosharizeh essence plant on treatment of dogs with dermatophtosis.

MATERIALS AND METHODS

First of all, from suspicious skin lesions animals were sampled. It is quite scissors and hair growth by 70% alcohol was clean location. Then by using scalpel and forceps were samples from around waste. Samples collected in bags and transported to the laboratory. In each case the direct microscopic examination and culture on Sabouraud glucose agar culture medium containing chloramphenicol and cycloheximide were performed. Again two weeks after the last treatment were sampled and examined by direct microscopy and culture of each of them.

For the preparation of *Echinophora platyloba* extract, the plant materials were

washed with water and 2% sodium hypochlorite for 30 minutes was disinfected, then to remove residual hypochlorite, washed with sterile distilled water and dried in the shade and the dried plant material was powdered. 50 g of dried powder was soaked in 500 ml of methanol and 48 hours was shaken by shaker. Then by two layers of sterile linen filtered after that centrifuged for 10 min at 9000 rpm and filtered whatman paper number 41 again. The extract of Plant filled in separate vials in concentrations of 0.5, 0.75, 1 and 1.5 mg/ml. In the study, which lasted for 3 years, animals suspected of dermatophytosis were studied at several centers. Treatment method was based on it that first hair of waste area was shaved with scissor and additional shells were removed with scalpels. Then on the waste of dogs with dermatophytosis twice daily for 15 days solution of *Echinophora platyloba* with swap was applied.

RESULTS

According to results, the main cause of ringworm in dogs under test was *Microsporum canis* and *Echinophora platyloba* extract show full recovery in 50% of animal under treatment. In **Table 1**, the results of clinical and laboratory animals that have been treated with *Echinophora platyloba* extract can be seen.

Table 1: Laboratory results and clinical effects of treatment with *Echinophora platyloba* extract in animal with dermatophytosis

Clinical Signs			Culture		Direct microscopic	
Failure to improve	relative improvement	Full recovery	- (percent)	+ (percent)	- (percent)	+ (percent)
2	3	5	6	4	8	2
20%	30%	50%	60%	40%	80%	20%

DISCUSSION

The medicinal properties of plant species have made an outstanding contribution in the origin and evolution of many traditional herbal therapies. These traditional knowledge systems have started to disappear with the passage of time due to scarcity of written documents and relatively low income in these traditions. Over the past few years, medicinal plants have regained a wide recognition due to an escalating faith in herbal medicine in view of its lesser side effects compared to allopathic medicine in addition, the necessity of meeting the requirements of medicine for an increasing human population. This herb is one of the four species in Iran which is the only species in Iran [7, 8] which is used also as the food species [6]. In study which is carried on the *Echinophora Platyloba* it is cleared that this herb has elements such as Saponin, Alkaloids and Flavonoids [9]. Saponines are elements with toxic effects [10]. Saponins are glycosides with paid terpenoied with Surface active properties. One of the existing saponin elements in Capsicum SP. is CAY-I which is in lower level of toxic dozes for mankind cells [11].

CAY-I, is a saponin which *Trichophyton mentagrophytes* and *Microsporium canis* and *Epidermophyton floccosum* also depend on patient condition and infection can use such herb [12]. On the other hand prevalence of refractory dermatophytes infections in recent years has greatly increased and the choice of effective and appropriate treatment protocols for a specific period of time makes it unavoidable. In one study by Roussis indicated the change in the influence of plant essences on the activity of different microorganisms and the variability of effects of different microorganisms is depended on the type and size of effective molecules and the power of penetrability to the microorganism [13]. Methanolic extract inhibits both species of bacteria while it had co considerable effects on three species of fungi. It was also seen that in all three methods, the effects of methanolic extract of leaves were more than stems. Different components Antibacterial existing in this plant were previously studied and the most important ones include trans- β -ocimene (67/9%), 2-furanone (6.2%), myrcene (6%), linalool (3.1%) and cis- β -ocimene (2.3%) [14]. in our study the main cause of

ringworm in dogs under test was *Microsporum canis* and *Echinophora platyloba* extract show full recovery in 50% of animal under treatment. 50% of animals showed full recovery in comparison with the control group was significantly reported ($p < 0.05$). Thus, probably the noted *Echinophora platyloba* has inhibitory effects on experimental fungus growth.

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