

STUDIES ON THE ANTIFUNGAL ACTIVITY OF PTEROCARPUS MARSUPIUM: A CLINICAL EVALUATION

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Summary

P. Marsupium (Hindi Bijasar) is a powerful astringent and is used chiefly in diarrhoeas. It is also an useful remedy for diabetes mellitus and various skin diseases as mentioned in literature. In a blind clinical trial, the usefulness of this drug as a topical agent against *T. cruris* and *T. corporis* was evaluated. The drug yielded good response within 3 days of the first application.

KEY WORDS : *T. cruris*, *T. corporis*, *P. marsupium*

Introduction

Pterocarpus marsupium (Hindi: Bijasar) is a rich source of a non glucosidal tannin, kinotannic acid (Kino) besides kinoin, kino-red, pyrocatechin etc. Kino is a simple astringent and has been recommended in Ayurvedic system of medicine for treating diarrhoeas^{1,7}. Gum is used for toothache². Bruised leaves are useful for external application to boils, sores and some skin diseases^{3,4,7}. Recently the drug has also been advocated in cases of diabetes mellitus and some work is going on at various places in India to evaluate its effect on diabetes mellitus.

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Innumerable local preparations and systemic drugs are available for the treatment of fungal infections. The therapeutic effects of these are variable. Some of the patients reported to the author regarding the beneficial effect of Bijasar in some skin diseases. Therefore, clinical trials were set up to evaluate the potency of this drug as an antifungal agent.

Material and Methods

The subjects of trial were the patients suffering from various dermatophytic infections, attending the Skin O.P.D. of S.N. Hospital, Agra. Their age, sex, symptoms and duration of illness were recorded on special proforma prepared for this study. The patients with the history of diabetes were excluded from the study. The extent of skin involvement was also recorded. The patients were given ointments A, B or C at random, and were advised to apply the medicine twice a day. They were re-examined on 3rd, 7th and 10th days. Special enquiries were made to find out any side effect of the preparation during the trial.

Preparation of ointment

The wood of the plant *Pterocarpus marsupium* was obtained from the local market and was identified by the Forest Research Institute, Dehradun. 500g of the wood was crushed into coarse powder and was extracted to exhaustion in 90% alcohol and distilled water separately. The alcoholic extract was concentrated to dryness over a water bath and the aqueous extract to 25 ml. The dried and concentrated extracts were used to make 250 g of ointment in simple ointment base. The two types of ointments thus prepared were coded as ointment A (prepared from aqueous extract) and ointment B (prepared from alcoholic extract). Simple ointment base with the same colour served as control (ointment C). The three ointments were then submitted for clinical evaluation.

Results

50 patients completed the trial out of which 40 were males and 10 females. Majority of patients were in the age group of 20-40 years (Table 1). Out of 50 patients 22 patients were suffering from *T. cruris*, 14 had *T. corporis* infection and 14 had both. None of the patients was suffering from *T. capitis* or *T. unguium*. At the end of the trial it was found that 22 patients were given ointment A and 28 ointment B (Table 2). 5 patients who were given ointment C had no effect on the disease and hence it was withdrawn after 7 days and these were given ointment A or B. In all the patients,

TABLE 1
Showing the age and sex distribution

Age of patients in years	Number of patients	
	Male	Female
10-20	8	Nil
21-30	18	7
31-40	4	2
40 & above	10	1
Total	40	10

the disease was confined to only 1-2 lesions of about 10 × 7.5 cm. size. The duration of illness in these patients varied, the majority having it for 25-35 days. The maximum duration of the disease was 3 months.

TABLE 2
Distribution of patients with respect to clinical diagnosis.

Clinical diagnosis	No. of patients	
	Group A	Group B
<i>Tinea cruris</i>	10	12
<i>Tinea corporis</i>	8	6
<i>T. cruris</i> & <i>T. corporis</i>	4	10
Total	22	28

The responses were graded as *poor* (no response), *moderate* (symptoms disappeared but disease persisted), *good* (symptoms as well as vesiculation and exfoliation disappeared but mild inflammation persisted), *excellent*-when disease was completely cured.

In group A, on 3rd day of therapy none of the patients showed good to excellent response but 12 patients showed moderate and 10 poor response. On 7th day of therapy 16 patients showed good to excellent response whereas 6 had moderate to poor response. On 10th day of examination 16 patients had good to excellent and 6 moderate to poor response (Table 3).

In group B, 18 patients showed good to excellent response on 3rd day after the start of therapy. On 7th day this number increased to 22 and on 10th day to 26. Only 2 patients responded poorly to the therapy (Table 3).

Only one patient complained of mild irritation at the start of treatment which subsided on continuation of treatment.

TABLE 3
Showing response to treatment regimens

Response	Ointment of aqueous extract			Ointment of alcoholic extract		
	Response			Response		
	3rd day	7th day	10th day	3rd day	7th day	10th day
Poor	10	4	2	4	2	1
Moderate	12	2	4	6	4	1
Good	Nil	10	4	10	6	4
Excellent	Nil	6	12	8	16	22

Conclusion

It is seen that the ointment prepared from alcoholic extract is more effective than that prepared from aqueous extract. After 3 days of therapy ointment made from alcoholic extract showed 64% 18/28 cure rate. Ointment prepared with aqueous extract showed only moderate response in 55% 12/22 cases.

After 7 and 10 days of therapy 78% 22/28 and 93% 26/28 excellent to good response was obtained from the alcoholic extract compared to 73% 16/22 from the aqueous extract. It might be appreciated that there was no side effect after continuous use of drug for 10 days. It is concluded that a drug showing 93% antidermatophytic activity without any side effect can easily be recommended for use as antifungal agent. Further studies are being carried out to find out the systemic effects of this drug on dermatophytosis.

References

1. Chopra RN, Chopra IC, Handa KL and Kapur LD : Chopra's indigenous drugs of India, Calcutta, UN Dhur and Sons Pvt Ltd, 1958 p 522.
2. Nadkarni AK : Indian Materia Medica, Bombay, Popular Book Depot 1954, p 1025.
3. Mukerji B : The Indian Pharm Codex, New Delhi, CSIR 1953, p 133.
4. Blatter E, Cains JF and Mhaskar KS : Kirtikar and Basu's Indian Medicinal Plants, Allahabad, LM Basu 1933 p 828.
5. Wood HC and Lawall CH : The Dispensary of the United States of America, Philadelphia, PJB Lippincott Company 1940, p 584.
6. Majumdar AR : Modern Pharmacology and Therapeutic Guide, Calcutta, Se Pub Concern 1957, p 153.
7. Chopra RN, Nayar SL and Chopra IC : Glossary of Indian Medicinal Plants, New Delhi 1956 p 206.