



RESEARCH ARTICLE

PHARMACOGNOSY

IN VITRO SCREENING OF MUCUNA PRURIENS SEEDS EXTRACT FOR ANTILICE ACTIVITY**SINGH DINESH¹ GARG GOPAL² AND GUPTA VISHAL***¹Millennium college of Pharmacy, Nathu-Barkheda road, Neelbud, Bhopal India.².VNS institute of Pharmacy, Nathu-Barkheda road, Neelbud, Bhopal India.**GUPTA VISHAL**

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ABSTRACT

Pediculus humanus capitis, otherwise called as the human head louse, infestation is a major concern in public health associated problem. Resistance of pediculocidal drug towards head louse laid the foundation for research in exploring novel antilice agents from medicinal plants. In present study, various extracts of *Mucuna pruriens* seeds were tested against the head louse *Pediculus humanus capitis*. A simple method was conducted for determining the potential pediculocidal activity of ethyl acetate, petroleum ether and water extracts of *Mucuna pruriens* seeds. The finding revealed that petroleum ether extracts possess excellent antilice activity where as ethyl acetate showed moderate pediculocidal effects. Water extract was devoid of pediculocidal activities. All the results were well comparable with benzoyl benzoate (25%w/v). These results showed the prospect of using *Mucuna pruriens* seed extracts against *Pediculus humanus capitis* in difficult situations of emergence of resistance to synthetic anti-lice agents.



KEYWORDS

Mucuna pruriens seeds, antilice activity, Head louse, filter paper bioassay

INTRODUCTION

Head lice are ectoparasites and its infestation due to unhygienic conditions has negatively affected the society for decades, back to the earliest *Homo sapiens*. This condition is distributed around the world invading various ethnic groups with no restriction of sex and socioeconomic status¹. In India people spend so much money to buy the synthetic marketed products to solve the problem of lice. The lack of efficacy of these synthetic product is due to the emergence of resistance by the head louse and researchers were aimed on the search of new substitutes to synthetic ingredients, such as phytoconstituents obtained from plant sources. In the past decades many research has been done for anti-lice activity of phytoconstituents of various plant material²⁻⁵. *Mucuna pruriens* plant possess valuable medicinal properties and it has been studied for various activities like itching⁶, antioxidant⁷ anti diabetic⁸, anti neoplastic, anti epileptic, antimicrobial⁹ aphrodisiac¹⁰ and antihelmintic activity¹¹. *Mucuna pruriens* has also been shown to be neuro protective and as a fertility agent (in men). It also has analgesic and anti-inflammatory activities¹². The plant is still not investigated for anti-lice activity. It is therefore the aim of this study to investigate the effect of shade dried seeds of *mucuna pruriens* on head louse.

MATERIALS AND METHODS

PLANT MATERIAL:

The seeds of *mucuna pruriens* were purchased from local market of Bhopal. The seeds were washed with water, shade-dried and were pulverized with a mechanical grinder.

EXTRACTION:

The coarse powdered seeds of *mucuna pruriens* were extracted successively with ethylacetate

, petroleum ether and water by soxhlet extraction technique. All the extracts were concerned using rotary vacuum evaporator and kept in a desiccator until further studies. The colour, consistency and percentage yield of all extracts were observed.

TESTING FOR ANTILICE ACTIVITY OF CRUDE EXTRACTS :

Petroleum ether, ethylacetate and water extracts of *mucuna pruriens* seeds were tested for pediculocidal activity by filter paper diffusion method^{13,14}. All the extracts were dissolved in distilled water to obtain three different concentration (5%,10%,20%). The adults, nymphs and nits of *Pediculus humanus capitis* were identified and separated. The entire test organism were divided into 16 groups and were placed on a filter paper at the bottom of petridish and kept open. 0.5ml of each test sample was poured on the test organism and allowed to spread as a thin layer of 4cm². Group 1 was treated with 0.5ml distilled water and served as control. Group 2 to 13 were received 0.5ml of various concentration of petroleum ether ethylacetate and water extracts respectively. Group 14 to 16 were treated with 0.5ml of various concentration of benzyl benzoate 25%(w/v). All the Petridishes were set aside for 1 hour in a dark chamber at 26 ± 0.5⁰c and 70 ± 1% humidity. At the end of 1 hr, the dishes were taken out and applied 0.5 ml of distilled water and further placed in the chamber under the condition mentioned above. After 18 hr the dishes were observed under a dissecting microscope for any possible movement of lice and absence of any movement were considered dead^{15,16}. All the treatment was done in triplicate.

RESULT AND DISCUSSION

The colour, consistency and percentage yield of petroleum ether, ethyl acetate and water extract

recorded in table 1. All the extracts displayed concentration (5%,10%, 20%) dependent activity among which petroleum ether extract showed higher mortality followed by

ethylacetate extract ,respectively and was well comparable with the standard .Water extract in various concentrations showed minimal antilice activity.(Table 2)

Table-1
The colour ,consistency, and percentage yield of extracts

Extracts	Colour	Consistency	% yield
Ethyl acetate	Pale greenish	Sticky mass	6.8
Petroleum ether	Greenish brown	Sticky mass	9.0
Water	Dark green	semisolid	24.0

Table -2

Test sample	Concentrations %	Average mortality%
Distilled water 0.5ml	-	9.8
Petroleum ether extract (.5ml)	5%	51.3
	10%	84.5
	20%	99.8
Ethyl acetate extracts (.5ml)	5%	24.8
	10%	48.2
	20%	78.1
Water extract(.5ml)	5%	14.1
	10%	19.3
	20%	21.4
Benzoyl benzoate 25%w/v(.5ml)	5%	64.8
	10%	97.5
	20%	99.0

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