Vol 4|Issue 2| 2014 | 88-90.

ISSN 2249 - 7641
Print ISSN 2249 - 765X

International Journal of Pharmacology Research

www.ijprjournal.org

IN VITRO SCREENING OF *COCCINIA INDICA* FRUIT EXTRACTS FOR ANTILICE ACTIVITY

[1]Junaid Niazi*, [2]Vikas Gupta, [3]Narinderpal Kaur

[1]Assistant Professor, Bahra Institute of Pharmacy, Patiala (Punjab), India.
[2]Assistant Professor, University Institute of Pharmacy, BFUHS, Faridkot (Punjab) India.
[3]Assistant Professor, University of Emerging Sciences and Technology, Baddi (Himachal Pradesh) India.

ABSTRACT

Pediculus humanus capitis, otherwise called as the human head louse, infestation is a major concern in public health associated problem especially in developing or third world countries. Resistance of pediculocidal drug towards head louse laid the foundation for research in exploring noval antilice agents from medicinal plants. In present study, various extracts of *Coccinia indica* fruit extract were tested against the head louse *Pediculus humanus capitis*. A simple method was conducted for determining the potential pediculocidal activity of ethyl acetate ethyl alcohol, petroleum ether and water extracts of *C. indica* fruits. The finding revealed that petroleum ether extracts possess excellent antilice activity whereas ethyl acetate and ethanolic extracts 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 *C. indica* seed extracts a against *Pediculus humanus capitis* in difficult situations of emergence of resistance to synthetic anti-lice agents.

Keywords: Antilice, Pediculocidal, *Coccinia*.

INTRODUCTION

Head lice *Pediculus humanus capitis* 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 status. 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 phytocontitutents obtained from plant sources. In the past decades many research has been done for anti-lice activity of phytoconstitutents of various plant material [1]. *Coccinia indica* plant possess valuable medicinal properties and it has been studied for various activities like antioxidant and anti diabetic, anti inflammatory, anti nociceptive and anti pyretic, hypouricemic, anti microbial anti mutagenic, anti protozoal, expectorant, anti ulcer, hepatoprotective and anti helmintic activity [2-4]. The plant is still not investigated for its ectoparasitic activity. It is therefore the aim of this study to investigate the effect of fruits of *Coccinia indica* on *Pediculus humanus capitis*.

MATERIALS AND METHODS

Plant Material and Preparation of extract

The fruits of *C. indica* (500 g) were purchased from local market and were washed in running water, chopped and soaked in 1.5 L of petroleum ether, ethyl acetate, 95% ethanol and distilled water for 24 h. The extracts were filtered and residue re-suspended in respective solvents (1.5L) for 48 h. The extracts were then again filtered and were dried using a rotary evaporator to obtain the extracts. The extracts were stored at 0-4^{o}C and dissolved in desired solvent, whenever needed. The colour, consistency and percentage yield of the extracts were observed.

Methodology

Corresponding Author:- **Junaid Niazi** EMail ID: junaid.rbip@rediffmail.com

Petroleum ether, ethyl acetate, ethanolic and aqueous extracts of *C. indica* fruits were tested for pediculocidal activity by filter paper diffusion method [5]. All the extracts were dissolved in dimethylsulfoxide (DMSO) to obtain three different concentration (5%,10%,20%). The adults, nymps and nits of *Pediculus humanus capitis* were identified and separated. The entire test organisms 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 $4cm^2$. Group 1 was treated with 0.5ml distilled water and served as control. Group 2 to 13 were received 0.5ml of various concentrations of petroleum ether ethyl acetate, ethanolic and water extracts respectively. Group 14 and 15 were treated with 0.5ml of various concentration of benzyl benzoate 25%(w/v).All the petri dishes were set aside for 1 hour in a dark chamber at 26 ± 0.5^0C 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 was considered dead [7,8]. All the treatment was done in triplicate.

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

Extracts	Colour	Consistency	% age yield
Petroleum ether	Yellowish	Sticky mass	9.8
Ethyl Acetate	Greenish	Sticky mass	6.4
Ethanol	Dark Green	Sticky mass	10.3
Water	Greenish Brown	Sticky mass	15.6

Table 2. Percentage average mortality of different extracts

S. No	Test Sample	% age Concentration	% age Average Mortality
1	Distilled water 0.5ml		2.1
2	Petroleum ether extract (0.5ml)	5	55.4
3		10	82.7
4		20	94.3
5	Ethyl acetate extract (0.5 ml)	5	51.9
6		10	70.3
7		20	85.5
8	Ethanolic Extract (0.5 ml)	5	32.2
9		10	57.1
10		20	61.8
11	Water Extract (0.5 ml)	5	21.5
12		10	28.7
13		20	31.6
14	Benzoyl benzoate 25%w/v(.5ml)	10	89.1
15		20	98.4

RESULTS AND DISCUSSION

The colour, consistency and percentage yield of petroleum ether, ethyl acetate, ethanolic 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 ethyl acetate extract and then ethanolic extract, respectively and was well comparable with the standard. Water extract in various concentrations showed minimal antilice activity. (Table 2).

CONCLUSION

The present study confirmed the antilice activity of fruits of *Coccinia indica* against *Pediculus humanus capitis*.

REFERENCES

1. Singh D, Garg G, Gupta V. In vitro screening of Mucuna pruriens seeds extract for antilice activity. *Pharma and Bio Sciences*, 2(3), 2011, 107-110.
2. Niazi J, Singh P, Bansal Y, Goel RK. Anti inflammatory, analgesic and antipyretic activity of fresh leaves of *Coccinia indica*. *Inflammopharmacol*ogy, 17, 2009, 239-244.

3. Niazi J, Kaur N, Gupta V. *Coccinia indica*: A boon from tropics. *International Journal of Advances in Pharmaceutical Sciences*, 4(4), 2013, 637-646.
4. Carpinella MC, Miranda M, Almiro WR, Ferrayoli CG, Almeida FL, Palacios SM. In vitro pediculicidal and ovicidal activity of an extract and oil from fruits of *Melia azedarach* L. *Journal of American Academy of Dermatology*, 56, 2007, 250-256.
5. Yadav G, Mishra A, Tiwari A. Medical properties of ivy gourd (*Cephalandra indica*): a review. *International Journal of Pharma. Research and Development*, 2(9), 2010, 92-98.
6. Picollo MI, Vassena CV, Mougabure Cueto GA, Vernetti M, Zerba EN. Resistance to Insecticides and effect of synergists on permethrin toxicity in *Pediculus capitis* (Anoplura: Pediculidae) from Buenos Aires. *Journal of Medicinal Entomology*, 37, 2000, 721-725.
7. Jeba A, Samuel J, Radhamani S. In vitro screening of antilice activity of *Pongamia pinnata* leaves, *Korean Journal of Parasitology*, 47(4), 2009, 377-380.
8. Meinking TL, Taplin D, Kalter DC, Eberle MW. Comparative efficacy of treatments for pediculosis capitis infection. *Archives of Dermatolology*, 122, 1986, 267-271.