

EVALUATION OF ANTHELMINTIC ACTIVITY OF *PRUNUS PERSICA* (L.)NITIN KUMAR^{1*}, ANURAG CHAUDHARY²¹Department of Pharmacognosy, NKBR College of Pharmacy & Research Center, Meerut, Uttar Pradesh, India. ²Department of Pharmaceutical Science, MIET, Meerut, Uttar Pradesh, India. Email: nitin_23106@yahoo.co.in

Received: 01 June 2015, Revised and Accepted: 11 July 2015

ABSTRACT

Objective: *Prunus persica* leaves are used as anthelmintic, insecticidal, sedative, diuretic, demulcent, expectorant and vermifugal ethnopharmacologically. The objective of the present study was an evaluation of anthelmintic activity of different extracts of *P. persica* leaves.

Methods: *Pheretima posthuma* (annelids) and *Ascaridia galli* (nematodes) were used to perform experiments for anthelmintic activity. Piperazine citrate was used as a standard. The time required for paralysis and death (lethal time) of worms were noted for each sample of *P. persica* extracts and standard.

Results: The results demonstrated that the treatment with *P. persica* significantly ($p < 0.05$ - $p < 0.01$) with dose-dependently paralyzed and killed the both *A. galli* and earthworms. Ethanol and ethyl acetate extracts have showed the comparable anthelmintic activity at the highest concentration (60 mg/ml) to the well-known anthelmintic agent piperazine citrate against *A. galli*.

Conclusion: The ethanolic and ethyl acetate extracts exhibited the maximum potency, i.e. shortest paralysis and lethal times. The potency was not more than the reference drug, piperazine citrate but comparable to it at 60 mg/ml concentrations in both test worms.

Keywords: *Prunus Persica*, Anthelmintic activity, *Pheretima posthuma*, and *Ascaridia galli*.

INTRODUCTION

Helminthes infections are the most common infections in man which affects the large proportions of the world's population. In the treatment of parasitic diseases, the anthelmintics drugs are used indiscriminately. Recently, the use of anthelmintics produces toxicity in human beings. Hence, the development and discovery of new substances acting as anthelmintics are being derived from plants which are considered to be the best source of bioactive substances. *Prunus persica* L. (Peach) named as *Amygdalus persica* is a perennial and deciduous tree of the subfamily Prunoideae of the family Rosaceae. The leaves are insecticidal, sedative, diuretic, demulcent, expectorant, vermifugal and are used in leucoderma, and in piles [1]. Leaf paste is used to kill worms in wounds, and fungal infections. The treatment of gastritis, whooping cough, and chronic bronchitis is carried out internally with leaves [2]. The bark is used in leprosy, and jaundice. Leaves of *P. persica* have been investigated for their antioxidant [3], and anti-inflammatory activities in the past [4]. *P. persica* screened for the treatment of Alzheimer's disease [5]. Fruits of *P. persica* reported for the hypoglycemic effect for the prevention of Type-2 diabetes [6]. *P. persica* seeds showed the good results in the treatment of the degenerative disorders, such as hypermenorrhoea, and dysmenorrhoea [7]. Hence, various activities have been reported from various parts of *P. persica*. The leaves of *P. persica* was used in the treatment of helminthes ethnopharmacologically (Charaka Samhita, and Ayurveda), but no scientific data is available yet. Therefore, it was thought to investigate the anthelmintic potential of leaves of *P. persica*.

METHODS

Plant material

The leaves of *P. persica* were collected in the month of August from a village and were authenticated by Department of Botany, Meerut College, Meerut, Uttar Pradesh, (India).

Experimental worms

Indian earthworms (*Pheretima posthuma*) were obtained from the waterlogged areas. Adult Indian earthworms (*P. posthuma*) have

anatomical and physiological resemblance with the intestinal round worm parasite of human being [8-11].

Ascaridia galli Schrank (Nematoda) were collected from the Department of Veterinary Science, Pantnagar. *A. galli* infections affect the poultry productivity through retarded growth, diarrhoea weight loss, and poor absorption of nutrients [12].

Preparation of extracts

The leaves of *P. persica* were dried under shade and crushed in an electric blender to form coarse powder (200 g), and subjected to soxhlet extraction (continuous hot extraction) by using petroleum ether, ethyl acetate, and ethanol as solvent. The extracts were concentrated by rotary evaporator and used for testing the anthelmintic activity.

Test samples

Test samples were prepared freshly. Varying concentrations of three tests extracts such as petroleum ether, ethyl acetate, and ethanol viz. 10, 20, 40, 60 mg/ml for each were prepared by dissolving or suspending in distilled water for annelids. Similar dilutions were made in phosphate buffered saline (PBS) (pH 7.2, 0.15 M), supplemented with 2% dimethyl sulfoxide (DMSO) for nematodes.

Experimental design

The fresh worms of nearly equal size were selected for the study. Each type of worms was divided into 14 groups of six worms each.

The first group was served as positive control and kept in 9 cm petri dishes containing 20 ml of piperazine citrate (10 mg/ml) in distilled water (for annelids) and in 2% DMSO (dimethyl sulfoxide) in (PBS, pH 7.2, 0.15 M) (for nematodes). Piperazine citrate (10 mg/ml) was served as reference vermifugal drug in the positive control group.

The second group was served as negative control, and kept in distilled water for annelids and 2% DMSO in PBS (pH 7.2, 0.15 M) for nematodes.

