



Anti-tubercular Activity of fruits of *Prunus armeniaca* (L.)

Jaya Sehgal, Dr.P.Siddheswaran. Dr.K.L.Senthil Kumar* And Mrs. T. Karthiyayini.

*Corresponding author klsenthilkumar1969@yahoo.co.uk

Department of Pharmacognosy, Padmavathi College of Pharmacy & Research Institute,
Dharmapuri, Tamilnadu.

ABSTRACT

The antitubercular effect of aqueous and ethanol extracts prepared from fruits of *Prunus armeniaca* (L.) was evaluated on *Mycobacterium tuberculosis* using cup plate method. The zone of inhibition was taken to assess antitubercular activity. The results showed that ethanolic extract have more significant antitubercular activity as compared to aqueous extract.

KEYWORDS

Prunus armeniaca (L.), antitubercular effects.

INTRODUCTION

Prunus armeniaca (L.), more commonly called as Apricot which belongs to the family *Rosaceae*, grows as a hard tree bearing stone fruit. It is cultivated in the warmer temperate regions. Plant is used as antidote, an expectorant, a tonic, an anthelmintic. It is also used in traditional medicine for the treatment of fever, cold, cough, asthma, bronchitis, laryngitis, constipation, anemia, hemorrhages and for the treatment of certain tumor¹. It is also claimed to increase fertility. A decoction of the plant bark has functioned as an astringent to soothe irritated skin². The oil obtained from seeds is massaged after delivery and also in general body pain. The bark of tree is applied in burns for cooling effect³. In Arab countries, mostly the oil extracted from seeds is used to cure hemorrhoids, aching noses and earache; it is also used in softening mask. *Prunus* species have been found to be antipyretic, leucodermatic and effective against leprosy^{4,11}.

MATERIALS AND METHODS

The plant *Prunus armeniaca* (L.) has been collected from private farm of Simla, district of Himachal Pradesh; India. The plant was identified at Plant Anatomy Research Center, West Tambaram, Chennai (PARC/2009/478).

Preparation of extract:

For the preparation of extract of the fruits of *Prunus armeniaca* (L.) 1kg fruits were taken. Then seeds were removed and pulp of fruits was soaked in petroleum ether at 40-60°C for one week, and then filtered. The petroleum ether soluble fraction was separated and removed. The remaining part of fruit pulp of *Prunus armeniaca* (L.) was packed well in Soxhlet apparatus and extracted with ethanol until the completion of the extraction. The extract was filtered while hot. Aqueous extract was also prepared similarly⁵.



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Lowenstein-Jensen (LJ) acid medium:

For the preparation of medium eggs were washed and immersed in 70% v/v alcohol. The eggs were broken and homogenised. Then strained the mixture through sterile gauze into a sterile container. Then hydrochloric acid, salt glycerol solution, malachite green and Penicillin G were mixed. The pH was adjusted between 6.4 and 6.8. It was then inspissated at 80° C for about one hour⁶.

Preparation of standard discs:

The drug Rifampicin (Lupin) was taken as a standard drug.

Screening of antitubercular activity:

Cup plate method:

Micro wells were made on culture media in 6 mm in diameter with the help of gel puncture machine. The micro wells were filled with 100 µl from different concentration of ethanolic and aqueous extracts and standard drug (Rifampicin). The Petri dishes used for antitubercular screening were incubated at 37° C for 3-4 weeks. The activity was measured in terms of diameter of zone of inhibition appearing around the micro-wells⁷.

Phyto-chemical analysis

Ethanolic and aqueous extracts were subjected to Thin Layer

Chromatography using TLC plates (0.1 mm thick silica gel) eluted with chloroform: ethanol (70: 30) and methanol: water (70: 30) respectively. The spots were identified under UV light^{8,9,10}.

RESULTS AND DISCUSSION

Traditionally medicinal plants have been used in folk medicine through out the world to treat various diseases; especially tuberculosis. We evaluated preventive effects of aqueous and ethanolic extracts of fruits of *Prunus armeniaca* (L.) using standard disc method. Ethanolic extract at different concentrations (400, 200 and 100µg/ml) showed the zone of inhibition 22mm, 12mm, 00 mm respectively. Aqueous extract at different concentrations (400, 200 and 100µg/ml) showed the zone of inhibition 18, 10, 00(mm) respectively as compared to standard drug (Rifampicin 100µg/ml) 27 mm.

CONCLUSION

This study reveals significant antitubercular effect of aqueous and ethanol extracts from fruits of *Prunus armeniaca* (L.) Further studies using more specific methods are required to explore the constituents responsible for the activity and the mechanism of this activity which might prove important and improved therapies for the treatment and prevention of tuberculosis.

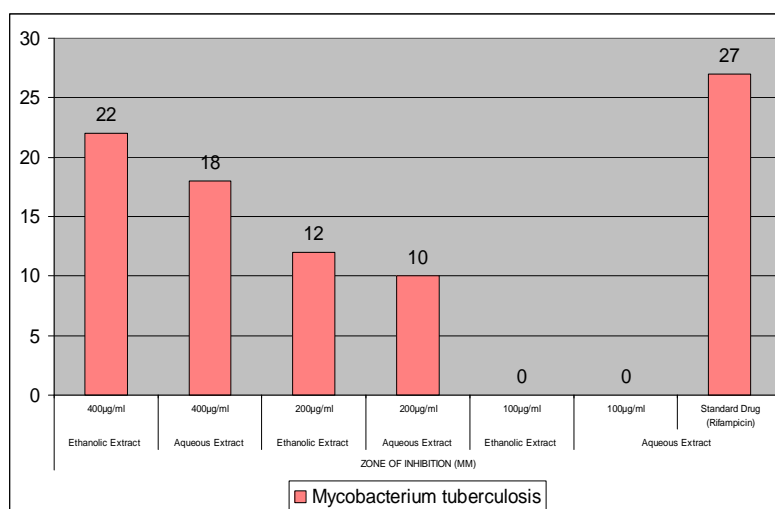


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TABLE 1
ANTITUBERCULAR ACTIVITY OF ETHANOLIC AND AQUEOUS EXTRACTS OF FRUITS
OF *PRUNUS ARMENIACA* (L.)

Microorganism	ZONE OF INHIBITION (mm)						
	Ethanollic Extract	Aqueous Extract	Ethanollic Extract	Aqueous Extract	Ethanollic Extract	Aqueous Extract	Standard Drug (Rifampicin)
	400µg/ml	400µg/ml	200µg/ml	200µg/ml	100µg/ml	100µg/ml	100µg/ml
<i>Mycobacterium tuberculosis</i> 25177(h37Ra)	22	18	12	10	0	0	27

GRAPHICAL REPRESENTATION OF ANTITUBERCULAR ACTIVITY OF ETHANOLIC AND AQUEOUS EXTRACTS OF FRUITS OF *PRUNUS ARMENIACA* (L.)





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