

Anthelmintic Activity of Root Bark of *Balanites aegyptiaca* (L.) Del.

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Abstract

The crude extracts of *Balanites aegyptiaca* (L.) Delile (Balanitaceae) was evaluated for anthelmintic activity using adult earthworms; the bark extract exhibited a dose-dependent inhibition of spontaneous motility (paralysis). The result shows that the aqueous extract possesses wormicidal activity and thus, may be useful as an anthelmintic.

Keywords- Anthelmintic, *Balanites aegyptiaca*, *Pheretima posthuma*

Introduction

Balanites aegyptiaca (L.) Delile belongs to family Balanitaceae is a small tree reaching a height of around 10m with compound leaves and greenish yellow flowers, and brown or pale brown fruits. It is widely used as good firewood and charcoal; edible fruit and seed has 30-40% of edible oil; young foliage and fruits are eaten by goats, sheep and camels; plant parts are used as soap substitutes because of high saponin contents; thorny branches used for fencing (Fernandes, 2003). Helminth infections are among the most common infections in man, affecting a large proportion of the world's population. In developing countries they pose a large threat to public health and contribute to the prevalence of malnutrition, anaemia, eosinophilia, and pneumonia. Although the majority of infections due to worms are generally limited to tropical regions, they can occur to travellers who have visited those areas and

some of them can develop in temperate climates (Bundy, 1994). The objective of the present work to investigate the anthelmintic activity of root bark of *Balanites aegyptiaca*.

Material and Methods

The plants were collected from the local villagers of Madhya Pradesh, India during 2008 and confirmed by Dr. S. N. Dwivedi, Head, Department of Botany, Janata PG College, A.P.S. University, Rewa, Madhya Pradesh, India. The plant parts after collection was shade dried, powdered (40 mesh size) to get a coarse powder. The dried powder material (200 gm) was thoroughly mixed, taken in 1 liter beaker and distill water in sufficient quantity was added, then it was kept for maceration for 72 hours. The aqueous extract obtained was filtered and concentrated on hot plate. Adult earthworm *Phertima prosthuma* were collected (due to its anatomical and physiological resemblance with the intestinal roundworm parasites of human being) from moist soil, obtained from Agriculture College Rewa, M.P.-India and washed out of sand. Four groups of approximately equal size earthworms (8+1 cm) consisting of six earthworms in each group were used for the present study (Blakemore, 1999; Gunasekhararan *et al* 2006; Dwivedi *et al.* 2008). Albendazole is taken as standard drug and the concentration of the standard drug was prepared in 1% gum acacia in normal saline to give 100mg/ml, 80mg/ml, 60mg/ml, 40mg/ml and 20mg/ml concentration. Five groups of approximately equal size earthworms consisting of six earthworms in each group were used for the present study. Each group was treated with one of the following vehicle (1% gum acacia in normal saline), albendazole and aqueous extract (100mg/ml, 80mg/ml, 60mg/ml, 40mg/ml and 20mg/ml concentration). Observations were made for the time taken to paralysis and death of individual worms. Paralysis was said to occur when the worms do not revive even in normal saline. Death was concluded when the worms lost their motility followed with fading away of their body color (Gunasekhararan *et al* 2006; Dwivedi *et al* 2008). The results were analysed for stastical significance using one-way ANOVA followed by Dunnett's 't' test and are presented in (Table 1).

Result and Conclusion

The result of anthelmintic activity of aqueous extract on earthworms phertima prosthuma were given in Table 1. The aqueous extract of root bark of *Balanites aegyptiaca* (L.) Del. showed significant anthelmintic activity.

Table 1. Anthelmintic activity of root bark extract of *Balanites aegyptiaca* (L.) Del.

S/N	Treatment	Conc. (mg/ml)	Paralysis Time (min.)	Death Time (min.)
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1.	Aqueous extract	100	5.10±2.30	12.50±3.80
		80	7.40±2.05	15.10±2.25
		60	7.50±2.12	15.00±2.40
		40	9.60±2.75	30.18±12.10
		20	10.30±6.00	32.30±16.50
2	Standard drug (Albendazole)	100	11.00±4.50	22.50±9.01
		80	11.60±4.75	47.60±27.70
		60	14.10±5.77	48.16±19.23
		40	14.30±5.86	48.83±20.00
		20	19.60±8.03	61.33±25.13

Result expressed as Mean ± SEM from six observations

It was concluded from the study that the aqueous extract showed marked and potent anthelmintic activity than the standard drug albendazole.

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