



Effect of successive extract of root of *Ziziphus jujuba* on bleeding time

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Abstract

Many cardiovascular diseases are associated with an increase in blood platelet activity. In Indian system of medicine, Ber (*Ziziphus jujuba*) is one of the medicinal herbs used to treat cardiovascular diseases such as arterial hypertension. In this study, successive extract of root of *Z. jujuba* was evaluated for bleeding time. MeOHxat 100 μ g/ml significantly ($p < 0.001$) decreased time of bleeding and 200 μ g/ml not significantly ($p > 0.05$) decreased time of bleeding. In short the MeOH extract significantly ($P < 0.001$) reduced bleeding time in rats. The result of the present investigation of the MeOHx of root of *Z. jujuba* supports the finding reported by earlier researchers. Therefore, we feel that *Z. jujuba* have good potentials for use in wound care.

Keywords: *Ziziphus jujuba*, Bleeding time

Introduction

Ziziphus jujuba Mill. (Rhamnaceae), Common jujube, a spiny deciduous shrub or small tree and commonly cultivated in India. The Chemical constituents like Carbohydrates, fat protein, amino acids, anthocyanins from fruit, seeds and leaves were reported. Leucocyanidin from bark, Leucopelargonidin, betulinic and ceabothic acids from wood, Rutin from leaves, Mauritines A,B,C,D,E and F, frangufoline and amphbines B,D and F. Ziziphine A,B,C,D,E,----- Q from stem and root bark were documented by various researchers. The roots are useful in wounds and ulcers. The leaves are bitter and are useful in wounds, syphilitic ulcers. Fruits are useful in leprosy, skin diseases, pruritus, wounds and ulcers, haemorrhages and general debility. The seeds are acrid and are useful in wounds.

Ziziphus jujuba is being used by tribal Adivasies in eastern parts of Jalgaon District (Maharashtra State) influencing injuries small cuts and or animals bite, attack and wounds. Various activities like anti-inflammatory (Adzu and Haruna, 2007); sedative and hypnotic (Gong



et al., 2000); anticancer, antiretroviral (Mukharjee et al., 2003); anticomplementary (Sang et al., 2004) and antioxidant (Seong et al., 2008) has been reported. A very recent *in vitro* study by Goker et al. (1) has shown that exposure of Ankaferd Blood Stopper (ABS) resulted in a very rapid formation of network within the plasma and serum. Thus, this unique mechanism of action provides ABS with the advantage over other hemostatically-active plant extracts and might, therefore, be effective both in subjects with normal hemostatic parameters and in those with primary and/or secondary hemostatic disorders. In the light of the above-mentioned data, this study aimed to investigate the *in vivo* hemostatic effect of successive extracts of root of *Ziziphus jujubain* rats.

Materials and Methods

The effect of the successive extracts on bleeding from fresh experimentally induced wounds was evaluated using the bleeding time test in rats (Okoli et al., 2007). Adult albino rats (200-250 gm) of both sexes were divided into five groups of three animals each. Control animals administered with normal saline. The tail of each rat was cut off with a sharp pair of scissors. Immediately, a drop of the extract (100 μ g/ml and 200 μ g/ml) was placed on the cut and at the same time a stopwatch was switched on. The cut was dabbed with a small piece of filter paper every 15 sec until the paper no longer stained red with blood oozing from the cut. Bleeding time was taken as the time for the drop of blood to show to the time when the filter paper stopped showing bloodstain (Dacie and Lewis, 1970).

Results and Discussion

Bleeding time reduced percents in rat blood treated with successive extracts presented in fig.1. PEx, CHx, MeOHx and AQx at 100 μ g/ml and 200 μ g/ml were found significantly ($p < 0.001$) decreased time of bleeding, whereas, ACx at 100 μ g/ml significantly ($p < 0.001$) decreased time of bleeding (Table 1) and 200 μ g/ml not significantly ($p > 0.05$) decreased time of bleeding. In short the MeOH extract significantly ($P < 0.001$) reduced bleeding time in rats (Fig. 1). The results are inconsistent, because may be either of residual solvent interference or phytoconstituents in it. The extract arrested bleeding from fresh wounds by reducing bleeding and whole blood coagulation time which are important indices of hemostatic activity.

Haemostatic involves the spontaneous arrest of bleeding from damaged blood vessels, which is important for initiation of tissue repair processes and prevention of tissue death through haemorrhage. In present study, the successive MeOHx of root of *Z.jujuba* effectively arrest bleeding from fresh wounds. Thus, our results are in good agreement with Achonye (1976), who demonstrated *Aspiliaafricanaleaf* extracts acts as haemostatic and Niwa et al., (1985), proved antifibrinolytic effects of the fruit of *Zizphusfructus*. The result of the present investigation of the MeOHx of root of *Z.jujuba* supports the finding reported by earlier researchers. Therefore, we feel that *Z.jujuba* have good potentials for use in wound care.

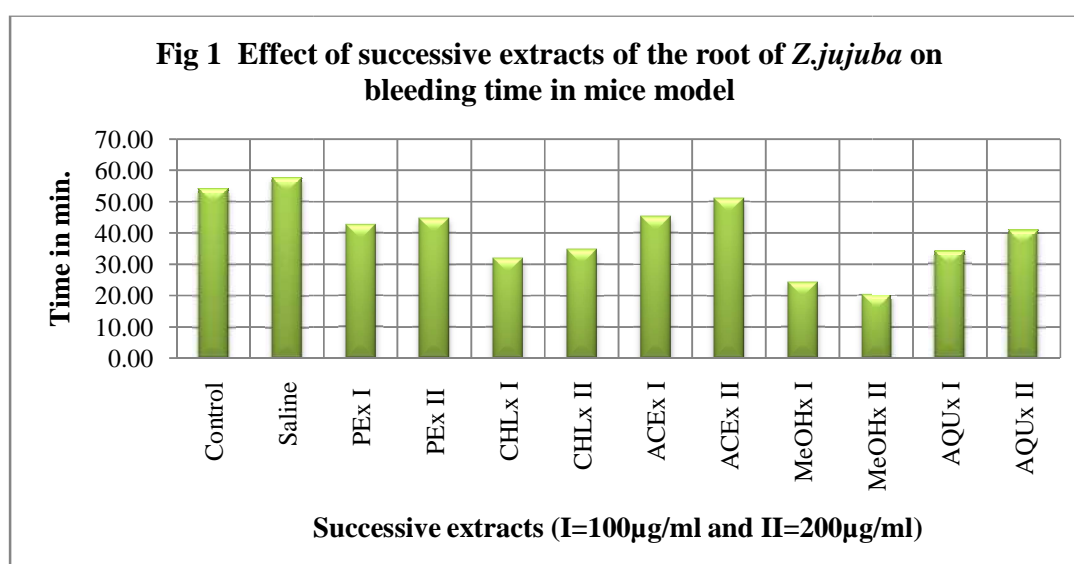


Table 1 Effect of successive extracts of the root of *Z.jujuba* on bleeding time in mice model

Successive extracts	Bleeding time (in Sec)
Control	54.17 ± 3.70
Saline	57.67 ± 3.56
PEx I	42.67 ± 1.63
PEx II	44.67 ± 1.86
CHLx I	32.00 ± 3.35
CHLx II	34.67 ± 3.27



ACEx I	45.17 ± 2.79
ACEx II	51.00 ± 2.19
MeOHx I	24.33 ± 3.08**
MeOHx II	20.17 ± 2.93***
AQUx I	34.17 ± 3.06
AQUx II	41.00 ± 2.61

All values are mean (time in sec) ± S.D., n= 6, A= p<0.001, B= p<0.01, C= p<0.05 and D=p>0.05 vs. control, *= 50mg/kg ; I = 100 µg/ml and II = 200 g/ml dose

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