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ANTI-HAEMORRHAGIC ACTIVITY OF HOMOEOPATHIC DRUG,SYMPLOCOS RACEMOSA Q - AN EXPERIMENTAL APPROACH

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Abstract

Symplocos racemosa Q (60% v/v alcohol content), on regular administration at a dose level of 25 µl /100 gm. b.w. daily once a day regularly for 7 days by the oral route produced a significant fall i.e. $p < 0.01$ in whole blood coagulation time, prothrombin time and fibrinolytic activity as compared to normal control and vehicle fed control groups. It is also evident that on increasing the dose to 50 µl /100 gm.b.w. , all the aforesaid parameters exhibited less significant response i.e. $p<0.05$. Hence, the drug, Symplocos racemosa Q possesses anti-haemorrhagic property at micro-doses.

Introduction

Bleeding is a most important part in human physiology which causes concern not only to the patient but also to the physician. The serious episodes involve sites where irreversible damage may result from compression of vital structures (e.g. intracranial, pericardial, nerve sheath or spinal cord) or from massive internal blood loss that may not be diagnosed rapidly (e.g. gastrointestinal, intraperitoneal, retroperitoneal). In all the cases patients must be informed and well supervised; any activity or procedures that may cause bleeding must be considered carefully and preparations must be made to treat possible haemorrhagic episodes. The importance of searching an effective and safe drug for the management of bleeding demands an immediate attention as prolonged haemorrhage are a leading cause of morbidity and mortality in man. Coagulants are employed with the hope of preventing the bleeding but as the modern coagulants cannot be used safely without adequate laboratory control it may cause untoward side effects causing much harm to the patients. Taking this point into consideration the present study was undertaken at this Institute for searching an anti-haemorrhagic agent from plant source which can be used safely for prevention of bleeding.

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The drug, Symplocos racemosa Roxb. which has been undertaken for study, is a small tree with stems upto 6m. high and 15 cm. diameter, distributed throughout North-east India ascending upto Himalayas and extending upto Chota Nagpur in Bihar. The astringent bark is given for the treatment of diarrhoea & dysentery, liver complaints and dropsy. A decoction of bark is used to stop bleeding of gums. In combination with sugar it is recommended in the treatment of menorrhagia and other uterine disorders (Wealth of India, Raw Materials, Vol.X and, Kirtikar & Basu in Indian Medicinal Plants, Vol.II).

The bark is reported to contain three alkaloids viz. loturine, loturidine and colloturine. Presence of a white substance, mixture of three coloured compounds besides reducing sugars, oxalic acid and phytosterol have been reported. Recently two closely related glycosides have been isolated from the ethanolic extract of the stem bark. One of them assigned the structure of 3-monogluco-furanoside of 7-0-methyl leucopelargonidin which is highly stringent and is reported to be probably responsible for the medicinal properties of the bark.

This is a non-homoeopathic pharmacopoeia drug, hence the mother tincture has been prepared at the Institute on the basis of maximum extractive value, which has been observed in 60% alcohol (v/v). Percolation technique has been used in accordance with the procedure laid down in Homoeopathic Pharmacopoeia of India (Vol.1, 1971).

Material and Methods

Albino rabbits of either sex weighing 1100 +-100 gms were selected after acclimatisation to standard laboratory conditions for 15 days. Water was allowed ad-libitum, photoperiod L/D, 10L/14D hours was maintained. These animals were fed with gold mohar pallet diet and green vegetables. These rabbits were divided into 3 groups and 3 subgroups. Each group contained 10 animals. Test drug, Symplocos racemosa Q, physiologi-

cal saline and vehicle were administered at a dose level ranging from 25 µl and 50 µl/100 gm. b.w. as follows.

Group-I	Normal control (0.9% saline (v/v)	Subgroup A	Administered 25 µl/100 gm. b.w. of saline daily once a day for 7 days regularly through oropharyngeal tube.
		Subgroup B	Administered 50 µl/100 gm. b.w. of saline daily once a day for 7 days regularly through oropharyngeal tube.
Group-II	Control 60% alcohol (v/v)	Subgroup A	Administered 25 µl/100 gm. b.w. of vehicle daily once a day for 7 days regularly through oropharyngeal tube.
		Subgroup B	Administered 50 µl/100 gm. b.w. of vehicle daily once a day for 7 days regularly through oropharyngeal tube.
Group-III	Test Drug S. racemosa Q	Subgroup A	Administered 25 µl/100 gm. b.w. of test drug, daily once a day for 7 days regularly through oropharyngeal tube.
		Subgroup B	Administered 50 µl/100 gm. b.w. of test drug daily once a day for 7 days regularly through oropharyngeal tube.

The blood samples for tests were collected by giving a sharp cut to the marginal vein of the ear. Following parameters were attempted to confirm/assess the results/observations.

A. Whole Blood Coagulation Time

Whole blood coagulation time tests were performed according to the Lee and White method. The tests were carried out before and after 7 days of treatment in all the groups. The coagulation time was indicated in seconds to simplify the statistical analysis.

B. Prothrombin Time

1.5 c.c. blood for prothrombin time test was taken directly into a test tube containing 0.4 c.c. of 3% of trisodium citrate dihydrate solution, prothrobin time tests were carried out according to Quick's method. The tests were performed before and after one week in all the groups.

C. Euglobulin Lysis Time and Fibrinolytic Activity

For undertaking the euglobulin lysis time test, 1.5 c.c. of blood was taken directly into a test tube containing 3.0% solution of trisodium citrate dihydrate. The tests were performed according to the Von Kanla's method (1963). To obtain the fibrinolytic activity, the reciprocal of the euglobulin lysis time in minutes was multiplied with 10,000 as described by Menon et al (1968). The tests were performed before and after one week of the treatment.

Results and Discussion

The details of the results obtained from this study with statistical data have been shown in tables.

Table - I
INFLUENCE OF S. RACEMOSA Q ON WHOLE BLOOD COAGULATION TIME (MEAN +- S.E.)

0.9% saline/ vehicle/test Drug	Doses	Whole Blood Coagulation Time in Seconds		
		Initial	After 7th Day Treatment	P. Value
Normal Control 0.9% Saline	25 µl	325.4 +-25.5	335.5 +-40.5	—
	50 µl	350.5 +-45.5	340.5 +-45.0	—
Control 60% alcohol	25 µl	435.5 +-55.0	450.5 +-30.5	NS*
	50 µl	410.5 +-60.5	430.5 +-65.1	NS*
Test Drug Symplocos racemosa Q	25 µl	422.5 +-44.5	360.5 +-35.5	<0.01 ***
	50 µl	395.5 +-40.5	355.0 +-45.5	<0.05 **

* NS : Not significant
** < 0.05 : Less significant
*** < 0.01 : Significant

As seen in table No.1 the drug S. racemosa Q at a dose level of 25 µl/100 gm. b.w. decreases the whole blood coagulation time which was significant (P<0.01) than the dose at 50 µl/100 gm. b.w. which is less significant (P<0.05) under indentical conditions.

Table - II
INFLUENCE OF S. RACEMOSA Q ON PROTHROMBIN TIME (MEAN +- S.E.)

0.9% saline/ vehicle/test Drug	Doses	Prothrombin Time in Seconds		
		Initial	After 7th Day Treatment	P. Value
Normal Control 0.9% Saline	25 µl	6.55 +-0.05	6.50 +-0.04	—
	50 µl	6.25 +-0.04	6.35 +-0.02	—
Control 60% alcohol	25 µl	6.85 +-0.05	6.95 +-0.03	NS*
	50 µl	6.35 +-0.45	6.50 +-0.02	NS*
Test Drug Symplocos racemosa Q	25 µl	6.45 +-0.05	5.60 +-0.05	< 0.01 ***
	50 µl	6.95 +-0.06	6.50 +-0.05	< 0.05 **

Table - III
INFLUENCE OF S. RACEMOSA Q ON FIBRINOLYTIC ACTIVITY (MEAN +- S.E.)

0.9% saline/ vehicle/test Drug	Doses	Euglobulin Lysis Time in Units		
		Initial	After 7th Day Treatment	P. Value
Normal Control 0.9% Saline	25 µl	36.55 +-3.25	37.05 +-2.05	—
	50 µl	40.05 +-4.55	40.04 +-4.05	—
Control 60% alcohol	25 µl	42.02 +-2.65	43.05 +-2.02	NS*
	50 µl	45.05 +-2.60	46.00 +-4.05	NS*
Test Drug Symplocos racemosa Q	25 µl	42.03 +-3.50	37.02 +-3.05	< 0.01 ***
	50 µl	38.07 +-3.58	36.04 +-2.05	< 0.05 **

Similarly in table No.2 the drug S. racemosa Q at a dose level of 25 µl/100 gm. b.w. decreased the prothrombin time which was statistically significant (P< 0.01) than the dose level of 50 ul/100 gm. b.w. which is non-significant (P<0.05).

In the table no.3 the fibrinolytic activity of the drug S. racemosa Q at a dose level of 25 µl/100 gm. b.w. was found increasingly significant (P<0.01) than the dose level of 50 µl/100 gm. b.w. which was non-significant (P<0.05).

Whereas 0.9% physiological saline and 60% vehicle fed control groups at a dose level of 25 µl and 50 µl/100 gm. b.w. exhibited non-significant response in all the aforesaid parameters.

Hence, from the result of the study it has been found that the drug Symplocos racemosa Q at a dose level at 25 µl/100 gm. b.w. in albino rabbits showed significant decrease in whole blood coagulation time, prothrombin time and fibrinolytic activity rather than at the dose level of 50 µl/100 gm. b.w., so it confirms that if the dose level is increased the coagulation time is also increased.

Thus, it can be concluded from the above observations that Symplocos racemosa Q possesses significant anti-haemorrhagic potentiality by decreasing the whole blood coagulation time, prothrombin time and fibrinolytic activity. Therefore it can be used in homoeopathic system of medicine in combating various haemorrhagic disorders of human race.

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