Objective: To screen for the pharmacological effects of *S. scabrida* on behaviour, temperature and blood coagulation.

Methods: Aqueous leaf extract of *S. scabrida* (55-440 mg/kg, p.o.) was given to albino mice to test for the central effects, while the aqueous and ethanol extracts mixed with fresh normal human blood were used for the blood coagulation study.

Results: The aqueous extract produced slight motor activity but gave rise to transient hyperthermia, while prolonging the prothrombin time of human blood.

Conclusion: Aqueous extract of *S. scabrida* produces transient hyperthermia, but no motor activity. It also possesses some anticoagulant properties.

INTRODUCTION

More than one third of Americans use herbs for health purposes, yet patients (and physicians) often lack accurate information about the safety and efficacy of herbal remedies. In Nigeria, many plants are used by the local population in the forms of ethanol and/or water extracts for the treatment of various ailments, even without the toxicological properties known: *Synclisia scabrida* is one of such plants. Its wide range of acclaimed potency has earned it the name “cure all”, among users, but only few of its actions are documented in literature. Found as a common flora in Southern Nigeria, Cameroun, Gabon and Angola, *S. scabrida* is used as an animal fodder by the local population, and in the management of various ailments by herbalists.

Burgeoning interest in medicinal herbs has increased scientific scrutiny of their therapeutic potential and safety, to provide physicians with data which would help patients make wise decisions about their use. As the leaf extract is claimed to be useful in maintaining alertness, wakefulness, and in bleeding disorders, the present investigation is undertaken as a preliminary pharmacological screening of the plant extracts on behaviour, rectal temperature and blood coagulation.

MATERIALS AND METHODS

Plant Material: Fresh leaves of *S. scabrida* were collected from plants growing in Nnewi area of Anambra State, Nigeria. Its botanical identity was confirmed by Mr. A. Ozioko of the Herbarium Section, Department of Botany, University of Nigeria, Nsukka (U.N.N.). A specimen of the plant is left at the university herbarium for future reference.

Preparation of Extracts: Plant leaves were washed with water, air-dried and milled to a coarse powder. About 10 g of the powder was soaked in 200 ml of distilled water. This was stood for 24 h, after which it was filtered, and the filtrate stored in the refrigerator and used when needed. The percent yield was 2.7. The ethanol extract was prepared by Soxhlet extraction over 10 h with 45 % ethanol. The percent yield was 3.4.
Table 1. Effect of aqueous and ethanol extracts on prothrombin time (PT) of normal human plasma.

<table>
<thead>
<tr>
<th>Test</th>
<th>Plasma only</th>
<th>Normal saline +Plasma</th>
<th>Aqueous extract +Plasma</th>
<th>Ethanol extract +Plasma</th>
<th>Heparin +Plasma</th>
</tr>
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<tbody>
<tr>
<td>PT (Sec)</td>
<td>12.0 ± 0.2</td>
<td>11.8 ± 0.2</td>
<td>86.2 ± 0.2*</td>
<td>20.7 ± 0.3*</td>
<td>110 ± 2</td>
</tr>
</tbody>
</table>

Values are expressed as mean ± SEM, n = 5. *P <0.05 when compared to plasma; #P <0.05 when compared to heparin.

RESULTS

The aqueous and ethanol extracts of *S. scabrida* gave positive chemical reactions for alkaloids and flavonoids. Administered orally, the LD<sub>50</sub> of the extract in mice was 8.13 ± 0.13 g/kg.

Central effects: Gross behavioural changes, rectal temperature and head tap test were examined<sup>10</sup>. Five groups having six mice each, were administered 55, 110, 220 and 440 mg/kg, p.o. of the aqueous extract respectively, and changes in behaviour, and head tap were observed 30 min to 2h after administration of the extract. The fifth group received normal saline only. For the rectal temperature study, doses of 110, 220 and 440 mg/kg, p.o. were given to the animals, while the control group received normal saline only. Temperature measurements were taken at intervals of 30 min.

Blood coagulation study: 0.02 ml of Tween 20 (+ saline) was mixed with 0.02 ml of the extracts (water and ethanol) separately in 1 ml volumetric flasks and made up to volume with deionized and distilled water. These were well mixed until homogeneity was achieved. Normal saline was used in place of the extracts for the negative control, and 50 mg/ml of commercial heparin for the positive control<sup>11</sup>.

Fresh normal human blood was bled into 32 g/l trisodium citrate solution in the ratio of 9:1, centrifuged and the plasma separated out for use. The prothrombin time (PT) test was carried out using the method of Quick<sup>12</sup>, with the addition of 0.02ml of the mixture of the extracts and Tween, normal saline, and heparin to the plasma, as test, negative, and positive controls respectively<sup>11</sup>.

Results are expressed as mean±SEM for five independent determinations, and Student’s ‘t’ test (non-paired) used to analyse the results. Difference is considered significant at p< 0.05.

Figure 1. Effect of aqueous extract of *S. scabrida* on rectal temperature.
increase in motor activity of the rats. There was piloerection especially in the neck region which disappeared on touching. There were, however, no ptosis, catalepsy, anaesthesia, crouching, gait and writhing. The rats exhibited fear and alertness, marked by turning and fleeing response. Neither ataxia, nor tremors or convulsions and circling motion were observed.

Rectal temperature: S. scabrida aqueous extract (110-440 mg/kg, p.o.) produced a dose-dependent hyperthermia. The effect appeared in 30 min, attained the peak in 60 min, and disappeared in about 2h as shown in Figure 1.

Blood coagulation study
The aqueous and ethanol extract of S. scabrida significantly (p<0.05) prolonged the PT of normal plasma (Table 1). Compared to the ethanol extract, the aqueous extract produced four times as much increase in PT as the ethanol extract but slightly lower than the heparin increase (Table 1).

DISCUSSION
The dried leaf extracts of S. scabrida (aqueous and ethanol) were tested for central and blood coagulation effects in albino mice and normal human plasma. Positive chemical reaction for alkaloids and flavonoids by S. scabrida extracts indicates that the extract could be of pharmacological importance13, while the LD$_{50}$ of 8.13 g/kg, p.o. confirms the safety of the extract orally since this is the usual route of administration by the users.

The aqueous extract induced piloerection which disappeared on touching, fear, alertness, and slight increase in motor activity which indicate its mild stimulatory action on the CNS. It also produced a dose-dependent and transient hyperthermia lasting for about an hour.

Both extracts significantly prolonged the PT of normal plasma, with the aqueous extract exhibiting greater potency, than the ethanolic extract. This property is similar to that exhibited by Tanacetum ciliicum11. This suggests that the aqueous and ethanol leaf extracts of S. scabrida have anticoagulant properties which compare well with heparin.

From these findings, it can be concluded that the leaf extract of S. scabrida produces transient hyperthermia, but no significant change in motor activity. They also possess anticoagulant properties.

REFERENCES