

IDENTIFICATION OF COLOUR REACTION OF BLOOD

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Aliphatic amines can intensify the colour of the benzidine test, where the penzidine test gives in conclusive results. A study is thereby done to observe the effect of the condition of the above intensifying agents to old traces of blood spilt on soil. It was found that a positive test can be obtained, where negative benzidine test for blood was seen after treatment with pyridine or n-propylamine.

INTRODUCTION

Detection of a minute trace of blood is an important part of the work of a forensic chemist. In the course of our investigation, we have found earlier that in cases where the trace of blood is very faint and the benzidine test gives inconclusive results, the colour developed can be intensified by treating the suspected trace of blood with a number of aliphatic amines.¹ Blood stains on cloth and paper were tested. We feel it would be of interest to observe the effect of the addition of the above intensifying agents to old traces of blood spilt on soil.

Testing was done by applying blood to different kinds of soils. Variation of the type of soil was in order to ascertain if the decomposition of blood differs in different types of soil.

MATERIALS & METHOD

Four types of soil were taken in this investigation. The characteristics of the soils are given in Table-1.

Table 1

Sl. No.	Location	State	Textural class	pH 1:2.5 water (2)	C (%) (3)	N (%) (4)	Cation exchange capacity meg/100gms of soil.
A.	Chiplima	Orissa	Clay loam	6.3	0.725	0.0116	0.26
B.	Taladanda canal side, Cuttack	-do-	-do-	6.1	0.642	0.642	0.24
C.	Botany Deptt. Ravenshaw College	-do-	-do-	5.4	0.620	0.620	0.25
D.	Chemistry Deptt., Ravenshaw College	-do-	-do-	3.2	7.250	7.250	0.24

PROCEDURE

1 cc. of human blood made upto 20 cc. with distilled water, was added to 20 g. of finely grounded dry soil and allowed to stand in the shade for 15 days. A pinch of the soil was taken in a porcelain dish and the benzidine test was performed on it. In case of the soil sample-D, it was found that benzidine test was negative (-ve), if performed without the intensifying agent initially.

Simultaneously, another lot of the above four treated soil samples was kept under stagnant water for 15 days. The soils were then subjected to treatment with the same amines and the benzidine test was applied to these. The results of the second series of test did not differ from the results of the first series.

The above four soil samples which were stained with blood and kept for 15 days, were stirred with ten volumes of saline water (10%) for five minutes, and the suspension was filtered. The filtrate subjected to benzidine test after addition of the amines. The results observed were similarly with the difference that the colour observed in the positive tests was deeper with the saline extract. The results of the above tests are given in table-2.

No. of observation	Treatment with :	Soil A	Soil B	Soil C	Soil D
1.	Pyridine	++	++	++	+
1.	Ethylamine	+	+	+	- +
3.	n-Propylamine	+	+	+	-
4.	iso-Propylamine	++	++	++	-
5.	Butylamine	+	+	+	-
6.	iso-Butylamine	+	+	+	-
7.	Dimethylaniline	+	+	+	-
8.	Piperidine	-	-	-	-
9.	Triethylamine	-	-	-	-
10.	Aniline	-	-	-	-

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5. Jackson, *Soil and Chemical Analysis*; p. 84, Prentice Hall of India Publishers (1973).

