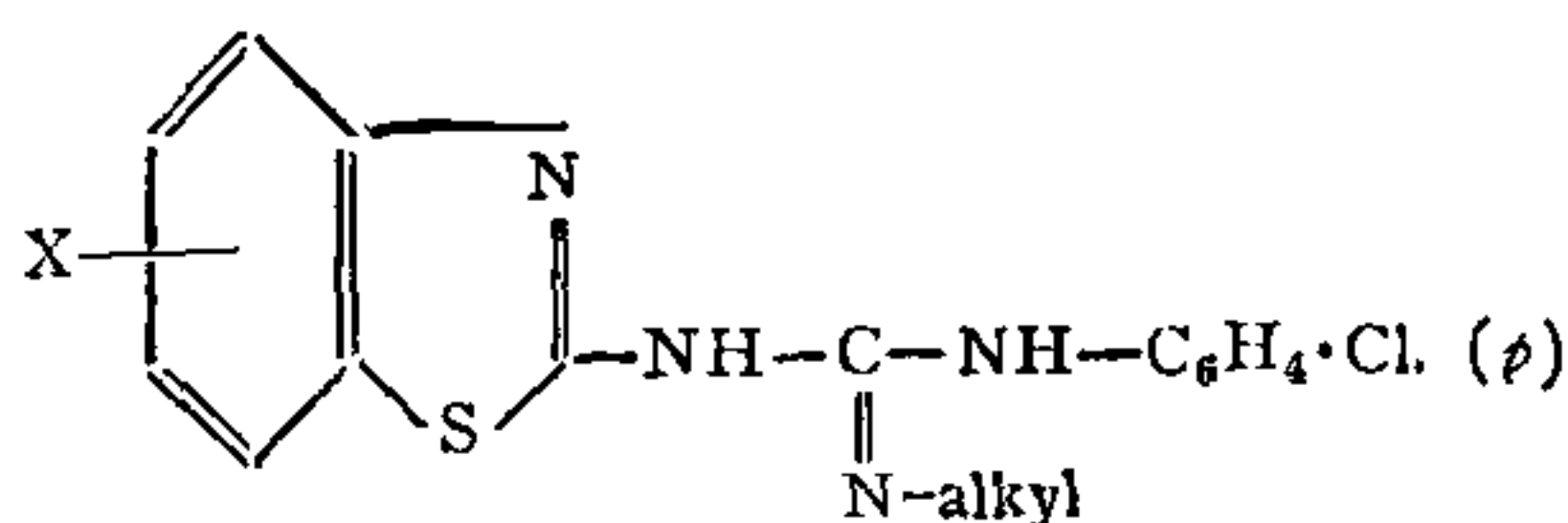


TABLE I

N-*p*-Chlorophenyl-*N'*-2-(substituted) benzothiazolyl-*N''*-alkyl guanidines



S. No.	Substituent X	Yield %	M.P. °C	Molecular formula	Nitrogen, %		Sulphur, %	
					Found	Calcd.	Found	Calcd.
Alkyl = <i>n</i> -propyl								
1	H	80	97	C ₁₇ H ₁₇ ClN ₄ S	16.01	16.26	9.34	9.29
2	4-Methyl	74	121	C ₁₈ H ₁₉ ClN ₄ S	15.73	15.63	8.85	8.92
3	5-Methyl	78	137	C ₁₈ H ₁₉ ClN ₄ S	15.61	15.63	9.00	8.92
4	6-Methyl	75	104	C ₁₈ H ₁₉ ClN ₄ S	15.45	15.63	8.90	8.92
5	4-Chloro	73	115	C ₁₇ H ₁₆ Cl ₂ N ₄ S	14.83	14.78	8.40	8.44
6	5-Chloro	60	119	C ₁₇ H ₁₆ Cl ₂ N ₄ S	14.89	14.78	8.58	8.44
7	6-Chloro	65	129	C ₁₇ H ₁₆ Cl ₂ N ₄ S	14.67	14.78	8.60	8.44
8	4-Methoxy	60	126	C ₁₈ H ₁₉ ClN ₄ OS	15.00	14.95	8.68	8.54
9	6-Methoxy	57	97	C ₁₈ H ₁₉ ClN ₄ OS	14.90	14.95	8.60	8.54
10	6-Ethoxy	68	136	C ₁₉ H ₂₁ ClN ₄ S	14.31	14.42	8.18	8.23
Alkyl = isopropyl								
11	H	69	107	C ₁₇ H ₁₇ ClN ₄ S	16.39	16.26	9.42	9.29
12	4-Methyl	77	126	C ₁₈ H ₁₉ ClN ₄ S	15.48	15.63	9.12	8.92
13	5-Methyl	68	129	C ₁₈ H ₁₉ ClN ₄ S	15.79	15.63	9.15	8.92
14	6-Methyl	70	204	C ₁₈ H ₁₉ ClN ₄ S	15.37	15.63	8.82	8.92
15	4-Chloro	80	151	C ₁₇ H ₁₆ Cl ₂ N ₄ S	15.00	14.78	8.55	8.44
16	5-Chloro	75	125	C ₁₇ H ₁₆ Cl ₂ N ₄ S	14.65	14.78	8.37	8.44
17	4-Methoxy	74	133	C ₁₈ H ₁₉ ClN ₄ OS	14.75	14.95	8.45	8.54
18	6-Methoxy	65	141	C ₁₈ H ₁₉ ClN ₄ OS	14.83	14.95	8.39	8.54
19	6-Ethoxy	83	124	C ₁₉ H ₂₁ ClN ₄ OS	14.58	14.42	8.40	8.23

(substituted) benzothiazolyl thiocarbamides and different alkyl amines in presence of yellow lead oxide and ethanol (Table I).

3-*p*-Chlorophenyl-2-(4'-methyl) benzothiazol-2'-ylimino-4-phenyl thiazole.—*N*-*p*-Chlorophenyl-*N'*-2-(4-methyl) benzothiazolyl thiocarbamide (3.3 g), acetophenone (1.2 ml) and iodine (2.54 g) were refluxed on a water-bath for 16 hr. Excess of iodine was removed by washing with ether and the crude product was washed with hot water and filtered. It was crystallised from ethanol. Yield 88%, m.p. 188° C (Found: N, 9.38. C₂₃H₁₆ClN₃S₂ requires N, 9.69%).

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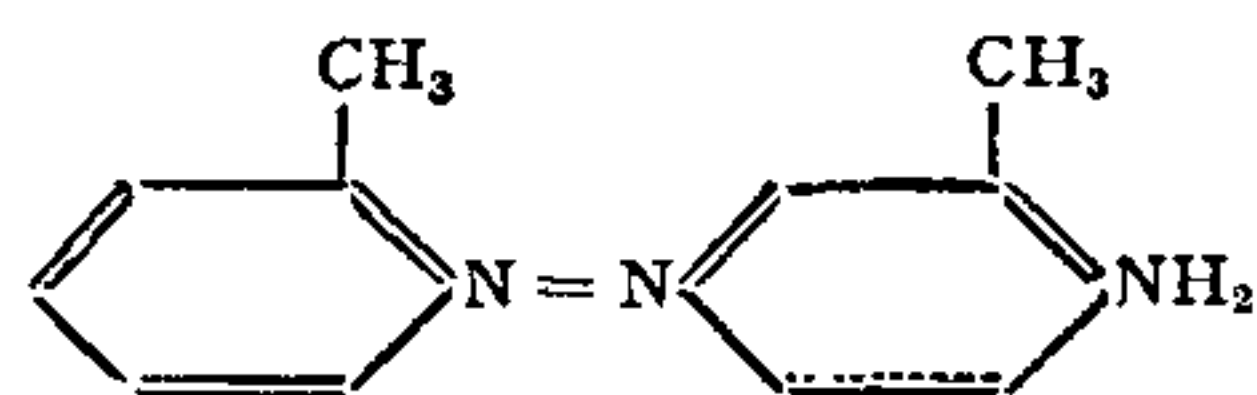
A NEW COLOUR REAGENT FOR THE DETECTION OF ACID PHOSPHATASE IN HUMAN SEMEN

With the discovery of high acid phosphatase activity in human semen by Kutscher and Wolbergs,¹ tests have been developed to identify the enzyme in suspected seminal stains encountered commonly in Forensic Science.

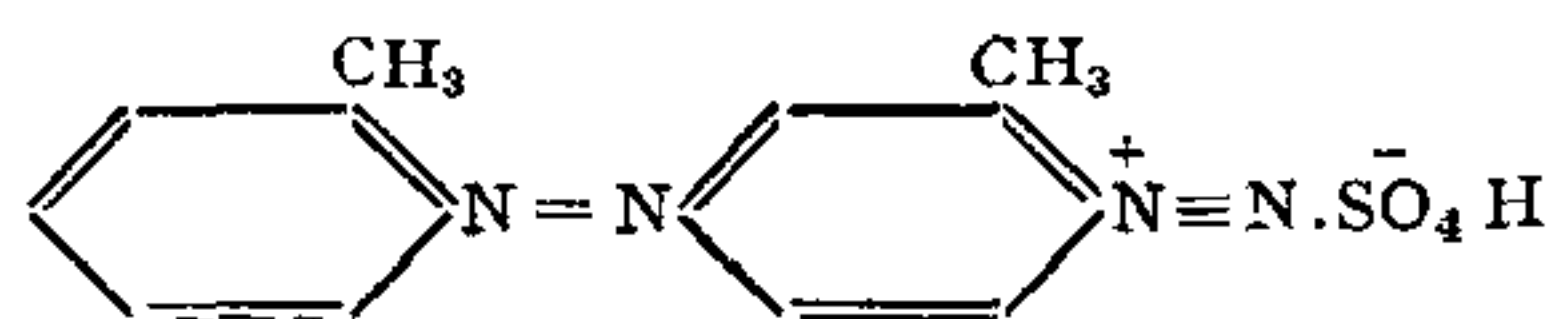
Acid phosphatases possess the property of hydrolysing organic phosphates in mildly acid media. One of the artificial substrates used is phenyl phosphate which is hydrolyzed by the enzyme to give free phenol and inorganic

phosphate. Phenol is estimated by the method of Folin and Ciocalteu. Phenolic substances possess the property of coupling with diazonium salts to give insoluble and highly coloured azo-dyes, a property which is commonly employed in the detection of acid phosphatase.

Some of diazonium salts like Brentamine Fast Blue salt B, Fast Navy Blue salt R.A., Fast Black Salt K, Fast Blue salt B and Fast Red Salt A.L. have been used by earlier workers. In the present communication a method is described for the detection of acid phosphatase in semen employing an hitherto untried diazonium salt namely Fast Garnet GBC salt of the following structural formula, which has given very satisfactory results.



The amine $C_{14}H_{15}N_3$
Mol. wt. 225.298
(O-Aminoazotoluene)



The acid sulphate
Mol wt. 334.364

For making the reagent 2 gm of sodium acetate trihydrate, 0.5 ml glacial acetic acid and 0.5 ml of solution of calcium α -naphthyl phosphate (1 gm per 5 ml in acetone) are dissolved in 100 ml of distilled water. To this 100 mg of GBC salt is added and the reagent thus prepared is used for detection of acid phosphatase. The results obtained are tabulated in Table I.

TABLE I

Semen stain	Colour obtained with the new reagent	Time taken for appearance of the colour at room temperature
1. Fresh stain (undiluted) on filter-paper	Pink	5 seconds
2. Fresh stain (1 : 10 dilution) on filter-paper	"	"
3. Fresh stain (1 : 100 dilution)	"	"
4. 6-7 months old semen stain on clothing	"	"
5. Filter-paper soakings of the old stains (S. No. 4)	"	"
6. Normal saline control	No colour	"

Forty-four stable diazonium salts were tested by Home Office, Central Research Establishment, Aldermaston, Berks (England) and out of these Fast Navy Blue salt R.A. and Fast Black salt K were recommended satisfactory for general application. Fast Garnet GBC salt has been tried for the first time and the colour reaction with this is found to be very prominent with seminal stains on the clothings as well as on filter-paper soakings.

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IS TEAK (*TECTONA GRANDIS*) A CALCICOLE ?

EARLIER, in their studies on the teak (*Tectona grandis* Linn. f.) forests of Madhya Pradesh, Bhatia (1954), Kulkarni (1951) and Puri (1951) have observed that teak is a 'Calcirole' species and they have drawn a positive relation of soil calcium and igneous volcanic eruptions on the growth and distribution of teak, in different localities of the State.

While working on the Ecology of River Narmada Upper Catchment Area, an attempt has been made to see if there is really a positive correlation between growth and distribution of teak in different associations and calcium content in the respective underlying soils. The forest vegetation in the Upper Catchment Area of River Narmada from Manot to Jabalpur has been classified into eleven forest associations as described earlier by Pandeya, Pandya, Murthy and Kuruvilla (1967). The position of teak in these eleven associations was judged upon by calculating the Relative Growth Index (RGI) and Coefficient of Variation (CV). The highest value of RGI and lowest value of CV in the associations for teak indicate domination of teak as shown in Table I.

It is evident from Table I, that the first four associations are dominated by teak, the rest carry teak as a component species only, whereas, in associations numbered 6 and 11, teak is totally absent.

The underlying soil samples were collected by profile method and analysed for their physico-chemical nature. Soil exchangeable calcium was estimated as per the method outlined