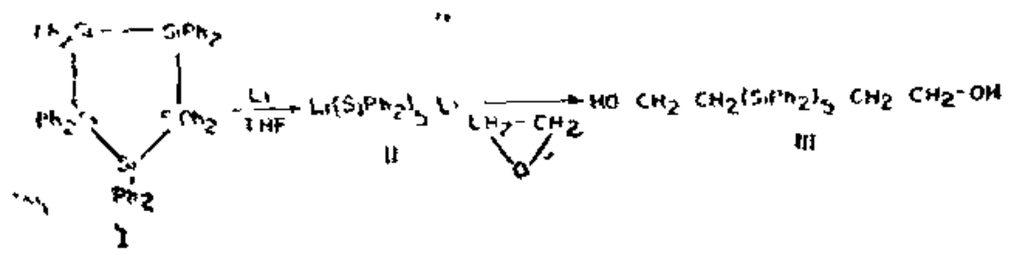
SYNTHESIS OF 1. 5-BIS (β HYDROXYETHYL)-DECAPHENYLPENTASILANE

A VARIETY of silyl-substituted carbinols has been prepared by the action of silylmetallic reagents on aliphatic aldehydes[1,2], aliphatic ketones[3,4] and with acid chlorides[2]. Tetrahydrofuran and trimethylene oxide were also cleaved by silyllithium reagent to 4- and 3-silyl-substituted carbinols[5,6], respectively. The formation of β-silylcarbinols were also reported from the reaction of triphenylsilyllithium with epoxides such as ethylene oxide, propylene oxide, etc.[7].

In an extension of the above work, the readtion of 1, 5-dilithiodecaphenylpentasilane (II) with ethylene oxide was studied.



Decaphenylcyclopentasilane[8] (I) was prepared by the interaction of lithium and dichlorodiphenysilane in retrahydrofuran (THF). Lithium cleavage of (I) in THF gave a solution of 1, 5-dilithiodecaphenylpentasilane[8] (II). To a cold solution of (II), a cold solution of ethylene oxide in THF (using dry ice in the jacket of the addition funnel and under nitrogen atmosphere) was added till the Gilman Colour Test[9] was negative. After the usual work up, a viscous residue was left which was chromatographed. Hhen eluted with carbon tetrachloride, decaphenylcyclopentasilane was obtained and identified by mixed melting point with an authentic sample of (I). From acetone elute 14% yield of 1, 5-bis (β-hydroxyethyl)-decaphenylpentasilane(III) was obtained, m.p. 169° (from methanol). Depression of melting point was recorded when (III) was mixed up with 1, 5-dihydroxydecaphernylpentasilane[10] (m.p. 172°). The I.R. spectrum of (III) showed peaks at 6·9, 8·9 and 14 μ due to Si-Ph group and a broad peak centred at 3 μ due to OH group. The analytical data were also in good agreeent with the carbinol structure (III). The yield of (III) did not improve when the same reaction was carried out in benzene or benzene-THF mixture as solvent. The latter fractions of acetone, eluted only oils which were combined and distilled to give oily polymeric material b.p. 60–70°/15 mm., from which no definite compound was isolated.

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A NOTE ON THE SYNTHESIS OF SOME NEW MEROCYANINES

BROOKER AND KENDALL[1,2] in 1935 have described a new series of dyes, known today by the general name "Merocyanines". Many of these dyes are valuable photographic sensitisers. Several such dyes have been synthesised by Glauert and Mann[3], Glauert, Mann and Wilkinon[4], Braunholtz and Mann[5], Ittyerah and Mann[6], Abraham Thomas and Ittyerah[7], and Hora and Ittyerah[8]. This communication deals with the synthesis of some new merocyanines by the condensation of 1 : 6 dioxojulolidine and 8-methyl-I : 6-dioxojulolidine with *p*-diethylamino-benzaldehyde, 2-methyl-4-N : N-dimethylamino-benzaldehyde and 2-methyl-4-N : N-diethylamino-benzaldehyde. 1 : 6-Dioxojulolidine and 8-methyl-1 : 6-dioxojulolidine used in these condensations were prepared according to the procedure recommended by Braunholtz and Mann[9]. The ketoamines were condensed with the tertiary amino benzaldehydes in presence of a trace of potassium hydroxide in ethanol. All the compounds are highly coloured ranging from bright yellow to bright orange. The compounds are recrystallised from acetone or ethanol.

The analytical results, m.p., etc., of these merocyanines are given in Table I.

TABLE I

Sl. No.	Name	Formula	M.P. °C	Yield %	Nitrogen % Found	Nitrogen % Calc.
1.	2:5-bis-(*p*-diethylamino benzylidene)-R.	$C_{34}H_{37}N_3O_2$	194	57·14	8·32	8·09
2.	2 : 5-bis-(2-methyl-4-N : N–dimethylamino–benzylidene)-R	$C_{32}H_{33}N_3O_2$	220	48·14	8·50	8·55
3.	2:5-bis-(2-methyl-4-N : N-diethylamino–benzylidene)-R	$C_{36}H_{41}N_3O_2$	178	43·4	7·47	8·18
4.	2:5-bis-(*p*-diethylamino–benzylidene)-R′	$C_{35}H_{39}N_3O_2$	223	29·41	7·64	7·88
5.	2:5-bis-(2-methyl-4-N : N–dimethyl-lamino-benzylidene)-R′	$C_{33}H_{35}N_3O_2$	214	29·09	8·34	8·32
6.	2:5-bis-(2-methyl-4-N : N–diethylamino-benzylidene)-R′	$C_{37}H_{43}N_3O_2$	173	66·03	8·61	8·23

R = 1 : 6-Dioxojulolidine. R′ = 8–Methyl-1 : 6-dioxojulolidine.

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ANTIVIRAL PROPERTY OF TEA

WHILE screening substances for antiviral property, we found that an infusion of tea leaves inhibits the growth of several species of enteroviruses in cell culture. Four different commercial brands of tea leaves or "dust" yielded similar results; therefore experiments with one brand are reported here. An extract wes made by adding boiling distilled water to tea leaves in the proportion of 3 ml to 1 gm, allowing to stand at room temperature for 1 hour, collecting the supernatant and passing through a bacterial filter. The pH was adjusted to 7 with IM NaOH.

Cell cultures were prepared from kidneys of bonnet monkeys (*Macaca radiata*) as described previously[1]. Undiluted tea extract was toxic to these cells; 0·1 ml of 1 : 2 dilution in cell culture maintenance medium (MM) was not toxic to cells in tubes containing 1 ml of MM. Strains of our stock viruses were obtained from the Centre for Disease Control, Atlanta, U.S.A., passed in cell culture and stored frozen in the laboratory.

Stock virus suspensions were diluted in serial decimal steps in MM. To one set of dilutions equal volumes of a 1 : 2 dilution of tea extract and to another parallel set, equal volumes of MM were added and all tubes were held at 4° C for 1 hour. Quadruplicate tubes of cell culture were inoculated with these mixtures and they were examined for cytopathic effect daily for 7 days. The resultant infectivity titres of control and tea-treated viruses, calculated according to a standard formula[2] are presented in Table I.

TABLE I

The effect of tea infusion on the infectivity titres of enteroviruses

Virus species	Infectivity titre of virus ($TCID_{50}$/ml) Control	Tea-virus mixture	Per cent inhibition
Poliovirus type 1[7]	10^7	$10^{6\cdot33}$	79
Poliovirus type 2	10^7	$10^{5\cdot33}$	99·98
Poliovirus type 3	$10^{6\cdot5}$	$10^{3\cdot66}$	99·86
Coxsackievirus B, type 1	$10^{6\cdot66}$	10^3	99·78
Coxsackievirus B, type 2	$10^{6\cdot33}$	$10^{2\cdot33}$	99·99
Echovirus type 7	$10^{6\cdot33}$	$10^{5\cdot66}$	78
Echovirus type 11	$10^{6\cdot33}$	$10^{3\cdot5}$	99·85