

TABLE I

Monoethenoid acid oxidised	Dihydroxy acid obtained	Yield %	Melting point		Product by using silver benzoate and iodine with yield %
			Found °C	Reported °C	
<i>cis</i> -octadec-9-enoic acid	<i>erythro</i> -	72	132	132	<i>threo</i> -, 60
<i>trans</i> - " " "	<i>threo</i> -	65	94	95	<i>erythro</i> -, 65
<i>cis</i> -docos-13-enoic acid	<i>erythro</i> -	78	130-31	131	<i>threo</i> -, 56
<i>trans</i> - " " "	<i>threo</i> -	82	100	100	<i>erythro</i> -, 72

acid and 13, 14-dihydroxybehenic acid respectively in very good yields, the *cis*-monoethenoid acid giving the *erythro*-dihydroxy acid and the corresponding *trans*-isomeride giving the *threo*-isomer. Thus hydroxylation using silver succinate and iodine in dry benzene involves *cis*-addition of hydroxyl groups, whereas, hydroxylation using silver benzoate and iodine in dry benzene involves *trans*-addition of hydroxyl groups. The results obtained with the different monoethenoid acids are tabulated in Table I and compared with the results obtained by hydroxylation of the acids using silver benzoate and iodine in dry benzene medium.

General Oxidation Procedure.—Dry silver succinate (0.011 mole) was mixed with 70 ml of sodium-dried benzene and kept under gentle reflux in a water bath with calcium chloride guard tube. Dry, powdered iodine (0.01 mole) was added in three lots and the refluxing continued until the colour of iodine disappeared (*ca* 60 min.). The dry, unsaturated acid (0.01 mole) dissolved in 5 ml of dry benzene was then added and the mixture was gently refluxed for 6 hrs. After filtration, the benzene was removed from the filtrate and the residue refluxed with alcoholic potash (50 ml of 5% solution) for 60 min. Most of the alcohol was then removed by distillation, the residue diluted with water and then acidified. The solid dihydroxy acid was collected, dried, treated with about 10 ml of cold petroleum ether (40–60°C), filtered and crystallised from alcohol or ethyl acetate.

When oleic acid was first mixed with silver succinate in dry benzene and then refluxed with the gradual addition of iodine, the yield of dihydroxy acid finally was considerably lower.

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2-METHOXY-3-NITRO-5-CHLORO- BENZOHYDRAZIDE— A NEW BENZOHYDRAZIDE FOR CHARACTERISATION OF CARBONYL COMPOUNDS

SEVERAL new substituted benzohydrazides have been described as prospective reagents for characterisation of carbonyl compounds¹. Haksar and Sethi²⁻⁶ have prepared some mono- and disubstituted ortho-methoxy benzohydrazides. We have further extended this work⁷ and now we find that 2-methoxy-3-nitro-5-chlorobenzohydrazide is fairly reactive towards carbonyl groups although it could not yield the derivative with formaldehyde. This was prepared by the chlorination of salicylic acid with concentrated hydrochloric acid and hydrogen peroxide⁸ yielding 5-chlorosalicylic acid, methyl 2-methoxy-5-chlorobenzoate⁹ was prepared and then converted by nitration¹⁰ into methyl 2-methoxy-3-nitro-5-chlorobenzoate (m.p. 64°C). This nitrated compound was then converted into the corresponding hydrazide (m.p. 278, decomp.) by the usual method employing 60% hydrazine hydrate.

RESULTS

Sl. No.	Carbonyl compound	Molecular formula of hydrazones	Melting point (°C)	% Chlorine	
				Found	Required
1.	Acetone	.. $C_{11}H_{12}O_4N_3Cl$	288 (Decomp.)	12.56	12.43
2.	Acetophenone	.. $C_{16}H_{14}O_4N_3Cl$	290 (Decomp.)	10.65	10.21
3.	Ethyl Methyl Ketone	.. $C_{13}H_{14}O_4N_3Cl$	284 (Decomp.)	11.65	11.85
4.	Salicylaldehyde	.. $C_{15}H_{12}O_5N_3Cl$	286 (Decomp.)	9.51	10.15
5.	Acetaldehyde	.. $C_{10}H_{10}O_4N_3Cl$	282 (Decomp.)	13.59	13.07
6.	<i>p</i> -Dimethyl amino benzaldehyde	.. $C_{17}H_{17}O_5N_4Cl$	272 (Decomp.)	8.89	9.42

For preparing the hydrazones, the hydrazide (0.4 gm) was dissolved in ethyl alcohol (70 ml) with gentle warming. The carbonyl compound (0.4 gm) was added to the warm solution of the hydrazide and refluxed for 30 minutes, on a hot water-bath. On cooling to 0°C, coloured crystalline hydrazones were obtained, these were filtered at the pump, washed with small quantity of alcohol and recrystallised from either methanol or ethanol.

Formaldehyde did not react with methyl 2-methoxy-3-nitro-5-chlorobenzohydrazide to give hydrazones. A drop of hydrochloric acid was also added to the reaction mixture to catalyse the hydrazone formation but with no avail.

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ISOLATION OF THERMOPHILIC FUNGI FROM SOILS*

IMPORTANCE of temperature as one of the environmental factors affecting the microflora of a habitat qualitatively and quantitatively has been well documented^{2,4,7}. Although its direct influence on the prevalence of fungi has been worked out, its usage as a technique indirectly to isolate thermophilic and thermotolerant fungi has been confined to a few habitats such as composts, bird's nests and other self-heating materials^{1,5,6,8-10,11}. The present report deals with the isolation of such fungi from rice-cultivated soils around Madras.

Soil samples from two rice-fields were analysed for the flora using dilution and soil plate methods. Poured plates were kept in desiccators and incubated at 45°, 55° and 60°C. Three replicates were maintained for each sample and the fungal counts made on the seventh day. Martin's rose Bengal agar and Emerson's Yeast extract-phosphate-starch-sulphate (YpSs) agar were used in this study. Pure cultures were maintained and the fungi identified according to Cooney and Emerson³.

Table I shows the species of thermophilic fungi isolated from the soils by the two techniques. Of the ten species isolated, dilution plate method registered six species while soil plate nine, thereby showing the efficiency of the latter. Also, *Aspergillus fumigatus* has consistently been isolated from both the soil samples, irrespective of the increase in the incubation temperature. Only one species, viz., *Torula thermophila* was isolated by soil-plate method at the incubation temperature of 55°C whereas others occurred at 45°C. No fungus was recorded at 60°C.

Thermophilism, initiated by Mische⁹, has been studied by different investigators in detail to understand mycofloras of diversified habitats. Maheswari⁸,