

cotton fabric in protecting the latter against actinic attack. While the details of the technique of investigation and the results obtained, particularly on the chemical aspect of protection/deterioration of cellulose, are reserved for a future publication, it is the object of the present note to direct attention to the remarkable effect of manganese (as oxide) in inhibiting actinic deterioration.

The metals investigated were chromium, copper, iron, manganese, tin, titanium and aluminium. Three different concentrations of the metals, approximately 0.05, 0.5 and 1 per cent on the weight of fabric, were studied. Dosootie, a fabric of Indian tentage, was used. The metals were deposited as their oxides on the fabric by a double-bath process involving initial treatment in a soluble salt solution and subsequent decomposition with aqueous solution of alkali. The treated fabrics and untreated control pieces were exposed during hours of sunshine at Kanpur (lat. 26° 26' N., long. 80° 22' E.) for a total period of 2,400 hours. Samples were drawn according to a randomized plan initially and at intervals of 400 hours. Bursting-strength determinations were carried out at each sampling.

The results showed that manganese (0.56 and 1.3 per cent) on fabrics retards in a remarkable manner the course of actinic degradation; there is possibly a critical concentration of manganese above which only the protective effect is apparent. Although iron and aluminium in the higher concentrations (0.84 and 0.45 per cent respectively) show some protective effect in the very early stages of exposure, they are not useful. Fabrics containing chromium in the higher concentrations (0.8 per cent) generally follow the pattern of the control in the rate of degradation. Copper, tin and titanium accelerate degradation, the effect being most marked in the case of copper and titanium.

While the result with copper is not surprising, the behaviour of manganese in inhibiting actinic degradation has considerable practical possibilities. Confirmatory experiments on this are in progress.

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¹ Wagner, Webber and Siu, *Arch. Biochem.*, **12**, 35 (1947).

² Ramsbotham, J. E., "The Fire-proofing of Fabrics" (H.M. Stationery Office, 1947).

³ Cunliffe, P. W., *Shirley Inst. Mem.*, **2**, 244 (1923).

Preparation of Ferric Succinate Jellies

It is well known that a neutral solution of succinic acid gives a brownish-red precipitate of ferric succinate with a ferric chloride solution. Handl¹ obtained brownish-red crystals of ferric succinate by treating a ferric chloride solution with a solution of sodium succinate. We have now succeeded in preparing ferric succinate jellies.

The jellies have been obtained by the metathetical reactions between ferric chloride and sodium succinate. A ferric chloride solution containing 17.54 gm. of ferric oxide per litre and a 5 per cent solution of sodium succinate were found to give the best jellies. To 4 c.c. of the ferric chloride solution were added

different amounts of the sodium succinate solution. The total volume was kept at 6 c.c. in each case. The mixtures were shaken for about thirty seconds and then allowed to stand in a bath maintained at 25° C. The influence of the varying amounts of sodium succinate on the time of setting of the jellies was recorded.

Amount of sodium succinate (c.c.)	Time of setting (hr.)
2.0	1
1.9	2
1.8	4
1.7	6
1.6	9
1.4	15
1.2	24
1.0	36

These jellies, like the jellies of ferric phosphate and ferric arsenate investigated by Prakash², and of thorium borate investigated by Mushran³, are transparent, firm and perfectly stable. It is, however, interesting to note that whereas the other transparent jellies of ferric salts have been obtained by the dialysis of their sols and subsequent coagulation with suitable electrolytes, ferric succinate is the only jelly of iron so far known which has been obtained in a perfectly transparent state by the metathetical process. These jellies do not exhibit any syneresis and maintain their transparency even when kept for a long time. They set more readily at higher temperatures than at low, but lose their uniformity of texture and become opaque when allowed to set at high temperatures.

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¹ Handl, "Jahresbericht über die Fortschritte der Chemie", 279 (1859).

² Prakash and Dhar, *J. Ind. Chem. Soc.*, **6**, 391 (1929).

³ Mushran, *Nature*, **158**, 95 (1946).

Genetical Differences in Taste Sensitivity to Phenylthiourea and to Anti-thyroid Substances

Fox¹ first observed that people differed in their ability to taste phenylthiourea, and it was found (Blakeslee and Salmon², Blakeslee³, Snyder^{4,5}) that these differences were genetically determined. The distribution of taste thresholds to this substance in all populations so far studied has been found to be bimodal. Familial investigations indicate that the two classes of individuals, 'tasters' and 'non-tasters', that is, those relatively sensitive and those relatively insensitive to phenylthiourea, differ in respect of a single gene pair, the 'tasters' being homozygous or heterozygous for the dominant allele, the 'non-tasters' homozygous for the recessive allele. Between one quarter and one third of all individuals tested in various populations appear to fall into the recessive class. Fisher, Huxley and Ford⁶ have described observations which suggest that similar differences may exist among anthropoid apes. They have pointed out that this implies the existence of a stable, balanced polymorphism, and that, for such a system to occur, the heterozygotes should have had some selective advantage over the two types of homozygotes.

The taste sensitivity to phenylthiourea has been found to show only slight correlation or no correlator at all with taste sensitivity to some other bitter sub-