is generally found to hold good for aqueous solutions between 0° and 35° C., where $c'=0\cdot0163(c-0.0174)$. In some cases, c' equals to $0\cdot0177(c-0\cdot0177)$. Substituting these values in the above equation, we obtain $X_t=X_{18}[1+c\ (t-18)+0.0177\ (c-0\cdot0177)\ (t-18)^2]$. Hence the value of $X_t=0$ when $t=-38\cdot5$° C., *i.e.*, the conductivity vanishes for aqueous solutions below −39° C.

Studying the temperature of zero conductance for jelly-forming salts of thorium, Prakash[1] and recently Mushran and Prakash[2] have determined its value for various negatively charged colloidal systems. Nine out of twelve substances studied by them attain zero conductance between −20° to −30° C.; that of dyestuffs investigated by us also fall in the same range.

Dyes*	Zero conductance temperature
Methylene Blue ..	− 22·5
Fuchsin ..	− 22·0
Aniline Blue ..	− 21·0
Indigo Carmine ..	− 22·0
Bordeaux B ..	− 22·5
Benzopurpurin ..	− 21·5
Congo Red ..	− 21·5
Aniline Brown ..	− 22·5
Methyl Orange ..	− 22·5
Dianilazurin G ..	− 23·5
Aniline Scarlet ..	− 23·0

* Each in 3 concentrations ·05, ·10, ·20 per cent.

Water-soluble dyestuffs are the sodium or potassium salts of dye-forming acids of high molecular weight, or hydrochlorides or sulphates of a dye-base, and consist of: (*a*) ordinary inorganic ions of high mobility; (*b*) a micelle of high molecular weight and low mobility. The former's reaction to temperature will be similar to that of ordinary electrolytes, while the latter will attain zero conductance much earlier when the temperature is lowered. Another contributory factor which is significant in such cases is the association of water molecules, which increases rapidly on lowering the temperature.

Hence it follows that for solutions containing colloidal micelle, the temperature of zero conductance is higher than for ordinary electrolytes. Such would seem to be the case for soaps, dyestuffs, albuminous substances, tannins, etc., and for inorganic colloids.

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The Chem. Labs.,
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August 29, 1949.

1. *Jour. Phys. Chem.*, 1933, **37**, 907. 2. *Ibid.*, 1946, **50**, 251.

OCCURRENCE OF D-MANNITOL IN THE EXUDATION OF *OLEA GLANDULIFERA*

A manna-like substance, an exudation from *Olea glandulifera* ("Sugar tree") in the Aiyur forest is reported to appear during draught and is considered to be caused by incisions wrought by insects. Any artificial injury to the tree failed to induce the exudation.

A sample of this pale yellow exudation, collected in 1946, was found after the removal of fibrous material (Ca 5%) to dissolve freely in hot water. It is practically free of ash, and contains only traces of gelatinous matter and reducing sugars. The aqueous solution, on concentration and chilling or by addition of absolute alcohol (3 vols.) after a clarifying treatment with charcoal, deposited pure crystals of D-mannitol, m.p. 165-6° (identified by mixed m.p. with an authentic sample, by optical rotation before and after addition of borax and by the preparation of mannite-tribenzacetol,[1] m.p. 207°) in about 95 per cent. yield on the basis of water-soluble solids.

Dept. of Biochem., J. SRI RAM.
Ind. Inst. of Sci., P. L. NARASIMHA RAO.
Bangalore,
October 31, 1949.

1. *Identification of Pure Organic Compounds* by S. P. Mulliken, Vol. I, p. 155.

A SYNTHESIS OF PRUNETIN

THE action of ethyl orthoformate on 2-hydroxy-4:6-dimethoxypnenyl 4-nitrobenzyl ketone (I) in boiling pyridine containing a little piperidine yields 5:7-dimethoxy-4′-nitroisoflavone (II) in 60% yield. Prunetin (III) has been synthesized from (I) by