

Since as many as eight to twelve bands can be detected by the various methods on a single electropherogram, a complete resolution of all the constituents may be feasible by carrying out a continuous electrophoresis with one of the two electrolytes followed by electrophoresis and/or paper chromatography of the fractions obtained.

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A New Spray Reagent for Paper Chromatography of Polyols and Cetoses

VARIOUS reagents for indicating polyols in paper chromatography have been proposed by Hough, Buchanan *et al.* and Hockenhull¹. These reagents all have the disadvantage of reacting also with the sugars, not distinguishing them from the polyols.

We have found a reagent which enables us to distinguish the polyols from the cetoses but does not reveal the aldoses. Just before use, one volume of 1 per cent vanillin solution in ethanol is mixed with one volume of 3 per cent perchloric acid in water. This is sprayed on the previously dried chromatogram, which is put in an oven at 85° C. for 3-4 min. Glycerol, erythritol, xylitol, arabitol, adonitol, mannitol and sorbitol give, on a pale sandy background, spots going from pale blue to lilac pink, then all swiftly turning to pale grey-blue. Inositol, dihydroxyacetone, the aldopentoses and the aldohexoses do not react, except rhamnose, which gives a brick red spot. Sorbose and fructose give a very deep grey-green spot, easily distinguished from that of the polyols.

The limiting amounts of these substances which can be identified are: 0.005 mgm. for the cetoheptoses, 0.015 mgm. for the hexitols, 0.020 mgm. for rhamnose and the pentitols, 0.025 mgm. for erythritol and 0.03 mgm. for glycerol.

The phenols and some indolic compounds react also with this reagent, which explains why it cannot be employed when using phenol or cresol as chromatography solvent. Similarly, it cannot be used for some acids, especially malonic and gluconic acids, which give the same tint as the polyols. Acid and basic substances must be removed by suitable ionic resins before polyols can be identified by this reagent.

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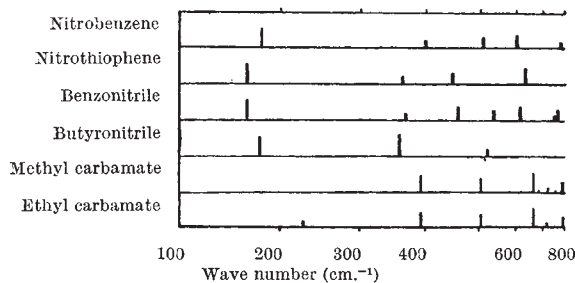
(Chargé de Recherches du F.N.R.S.)

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Odour and Molecular Vibrations

DYSON'S¹ hypothesis correlating odour specificity with molecular vibration has recently been extended by Wright² to frequencies below about 700 cm.⁻¹. In this region he claims to have found a statistically significant correlation for sixteen compounds with an almond-like odour, all but one (nitrothiophene) being benzene derivatives.



Our recent infra-red studies have included the aliphatic urethanes, the first member of which, methyl carbamate, possesses a distinct almond odour. Its Raman³ and infra-red frequencies are shown above together with those of ethyl carbamate and the four spectra depicted by Wright. The spectrum of methyl carbamate bears a closer similarity to the spectra of the 'almond-like group' than the spectrum of butyronitrile does, in spite of the fact that the seemingly characteristic frequency at 170 cm.⁻¹ is absent. Due to the lack of a suitable prism, we were unable to extend our investigations to this region; it also appears that the Raman studies were not extended as low as this, so that it is quite possible that methyl carbamate possesses this vibration and a search for such a frequency would be worth while.

On the other hand, the spectrum of ethyl carbamate also shows a similar resemblance to the 'almond-like group' yet has no trace of such an odour, being in fact almost odourless.

These observations emphasize the necessity for a much more detailed survey, covering several groups of compounds of different odour, as suggested by Dyson⁴. Due to the sparse data in the region below 700 cm.⁻¹ it would seem that some long time must elapse before such a comprehensive survey can be attempted and a reasonable foundation for a molecular vibration theory of odour obtained.

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Indirect Effect of Ultra-Violet Light on Skin Blood Vessels

It is known that the ultra-violet wave-lengths responsible for producing vasodilatation or erythema penetrate only a short way into human skin^{1,2}. These studies, however, do not by themselves exclude a direct action of ultra-violet light on the blood vessels