

SHORT COMMUNICATIONS**Adaptation of Mayer's reagent as a spray reagent for detecting alkaloids on paper chromatograms**

Although Mayer's reagent¹ is widely used for precipitating alkaloids, the reaction involves no color change and therefore cannot be easily adapted to the detection of alkaloidal spots on paper chromatograms. For example, this reagent was not included in the thorough study by MUNIER AND MACHEBOEUF², while TSCHESCHE AND PETERSEN³ developed a long and involved procedure for detecting alkaloids with Mayer's reagent.

While preparing the reagent by adding KI to HgCl₂, we noticed that a red HgI₂ precipitate formed first, which redissolved on addition of excess KI. This observation led to the development of the following procedure:

The dried paper chromatogram is sprayed with a 1% (w/v) solution of HgCl₂ in water. The strip is air dried and is then sprayed with a 0.5% (w/v) solution of KI. The alkaloids appear as white spots on a salmon background. Care should be taken not to spray KI excessively as it tends to decolorize the background.

Since this is essentially a Mayer's test, all alkaloids which form precipitates with the reagent are expected to respond to this spray reagent. Therefore, only a few alkaloids were tested, namely, brucine, nicotine, yohimbine, sparteine and reserpine. They all showed positive tests. A number of other nitrogen-containing compounds were also studied and quite a few gave positive tests. These include compounds containing a basic amino group or sulfur, e.g. ethanolamine, lysine, histidine, adenine, adenosine, adenylic acid, neomycin, thiamine, methionine and glutathione. Similar compounds neutral in nature are not detected by this reagent, such as urea, acetamide, glycine, alanine, uridine and caffeine.

It is therefore to be emphasized that this reagent is useful for detecting alkaloids but not to identify a spot as an alkaloid. However, the reagent might be used for the detection of other nitrogen-containing compounds as well.

*Squibb Institute for Medical Research, New Brunswick,
N.J. (U.S.A.)*

S. C. PAN
G. H. WAGMAN*

¹ C. D. HODGMAN (Editor), *Handbook of Chemistry and Physics*, 13th Ed., Chemical Rubber Publishing Co., Cleveland, Ohio, 1946.

² R. MUNIER AND M. MACHEBOEUF, *Bull. soc. chim. biol.*, 31 (1949) 1144.

³ R. TSCHESCHE AND R. PETERSEN, *Chem. Ber.*, 87 (1954) 1719.

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* Present address: Research Laboratories, Schering Corporation, Bloomfield, N.J. (U.S.A.).