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On a New Colour Reaction of Aldehydes

by

T. URBAŃSKI

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It has been found that diluted aqueous solutions of aldehydes give a *yellow colour* with a solution of 1-amino-8-naphthol-3,6-disulphonic acid (H-acid) or its sodium salt in sulphuric acid (80%).

This appears to be a general reaction of aldehydes.

Preparation of the reagent

A solution of 0.5% H-acid in 80% sulphuric acid was prepared in the following way:

100 ml. sulphuric acid (1.84) were mixed with 33.3 ml. water, and 0.70 g. H-acid were added to obtain a clear solution.

The test

To a few mls. of the reagent c. one ml. of the examined solution was added and then all was shaken. When a solution of high concentration of aldehyde was used, a yellow or orange colour developed immediately. At lower concentrations the colour appeared after warming on a steam-bath for a few minutes.

Sensitivity

The sensitivity of the test can be seen from the lowest concentrations detectable by this method.

The concentrations are tabulated below:

Aldehyde	Detectable concentration per cent
Formaldehyde	0.01
Benzaldehyde	0.01
Cynnamic aldehyde	0.002
Furfural	0.002

Acetaldehyde and homologous aliphatic aldehydes, paraldehyde and various derivatives of benzaldehyde, all give the same colour reaction with H-acid.

Ketones also give a similar reaction, but the sensitivity of the test is much lower. Thus, acetone gives a yellow colour when present in a concentration of 5% or higher.

Experiments on the possibility of using this method for the quantitative determination of aldehydes are now being carried on.

INSTITUTE OF ORGANIC CHEMISTRY, POLISH ACADEMY OF SCIENCES