

LABORATORY NOTES-ON COLOR TESTS.*

BY G. H. P. LICHTHARDT.

Five years ago the author submitted the following formula as a reliable identification test for caramel in flavoring extracts:

Tannic acid	1.00
Sulphuric acid (1.84)75
Water to make	50.00

The tannic acid is dissolved in about 30 Cc. of water, the acid is added, and, after the precipitate which is formed is dissolved, the quantity is made up to the required weight.

I have not found it necessary to change the original formula, which has been found to keep well and not lose its efficiency. This test has since been used in the laboratory upon the many different articles which came to my notice while city analyst of the city of Sacramento, and it was found that not only was it possible to detect caramel in flavoring extracts, whisky, brandy, and other liquids, but also in many other preparations, such as ready-made medicines, vinegar, and in one case it enabled me to expose a fraud in a celebrated medicine vendor case.

An attempt was made to detect chicory in coffee infusion, but unsuccessfully, as it was found that, while chicory infusion gave a dark precipitate, coffee also gave a more or less colored precipitate; while it differed from that thrown from chicory, it cannot be distinguished in an infusion of a mixture of these two substances.

In the case of vinegar the liquid is carefully neutralized and the test applied in the usual manner, which is: to about 5 Cc. of the suspected liquid there is added an equal amount of the test solution. The mixture is slightly heated and allowed to stand for 24 hours, when, if caramel is present in the original solution, a dark-colored precipitate will be deposited.

The identification of the source of color in food and drug analysis is rather a difficult one, and one must not depend upon any one test, but should ever be on guard to prevent error. This was rather forcibly brought to my notice some years ago in regard to the double dyeing test for coal-tar colors. A number of oranges were sent to the laboratory for examination. Their color was not at all normal, but appeared to have been dyed. Upon investigation it was found that the coloring matter would dye wool from an acid bath; that the color could be removed from the wool by dilute ammonia, and that it would again dye from the ammonia solution when this was rendered acid; also, that the color was very soluble in alkaline solutions, especially in dilute ammonia.

It was found that the natural color of oranges and of lemons has this peculiar property which is analogous to the behavior of the coal-tar colors. The method of double dyeing has long been used to distinguish these colors, but it has been my observation that one should not depend thereon as a positive test.

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