XXI. THE USE OF MERCUROCHROME AND MODIFIED MERCUROCHROME AS BIOLOGICAL STAINS

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Experiments were performed to ascertain the possibilities of mercurochrome as a stain for animal tissue. The results lead to the conclusion that mercurochrome is a good, quick-acting, general-purpose stain for animal tissue and bacteria.

The stain used was mercurochrome 220 soluble, the readily accessible salt used as an antiseptic, in one and five percent aqueous solutions. The experiments were conducted with glandular tissue, blood tissue, and bacteria. Chromo-acetic acid and Bouin's picro-formol solution were used as fixatives. Mercurochrome stains red in various degrees of intensity, depending on the concentration of the solution and the kind of tissue.

Tests were made with chemically related stains such as fluorescein and kindred dihydroxybenzene phthalein derivative compounds. Some of these stains were found to be fairly good for certain purposes, but none were as satisfactory as mercurochrome in most respects. Comparative experiments showed that mercurochrome stains essentially the same parts of the animal cell as does eosin, which is one of related stains.

Mercurochrome is a superior blood stain in that it stains and differentiates the white corpuscles as well as the red. The nuclei of the leucocytes stain darker than the red corpuscles, and the cytoplasm stains pink. The writers consider mercurochrome superior to eosin as a blood stain.

Although fair nuclear differentiation can be produced with mercurochrome as a single stain, it works well with methyl green and gentian violet as counter-stains. It was found best to use the counter-stain first, and if methyl green is used, the period of staining should be considerably longer than that of mercurochrome.

A simple technique for double staining is: flood with methyl green (4% aqueous solution) for seven minutes, flood with water, flood with 1% solution of mercurochrome for three minutes, dehydrate, immerse in xylol and mount in balsam.

For staining with mercurochrome alone, flood with 1% solution for five minutes, wash with water, dehydrate, wash in xylol and mount in balsam. As mercurochrome is soluble in lower concentrations of alcohol, care must be taken that while in these solutions the tissues are not destained.

Results warrant the opinion that mercurochrome can be used to advantage in the physician's office or clinic and in general laboratory practice because of the speed and completeness with which it stains, and the availability of the cencentrations used.