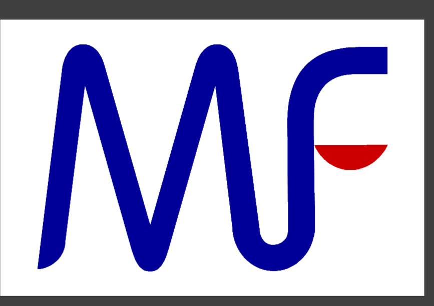
A NOVEL AND ECONOMICAL STAINING METHOD FOR QUICK IDENTIFICATION AND EVALUATION OF FFPE SECTIONS IN A HISTOLOGY LABORATORY



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INTRODUCTION

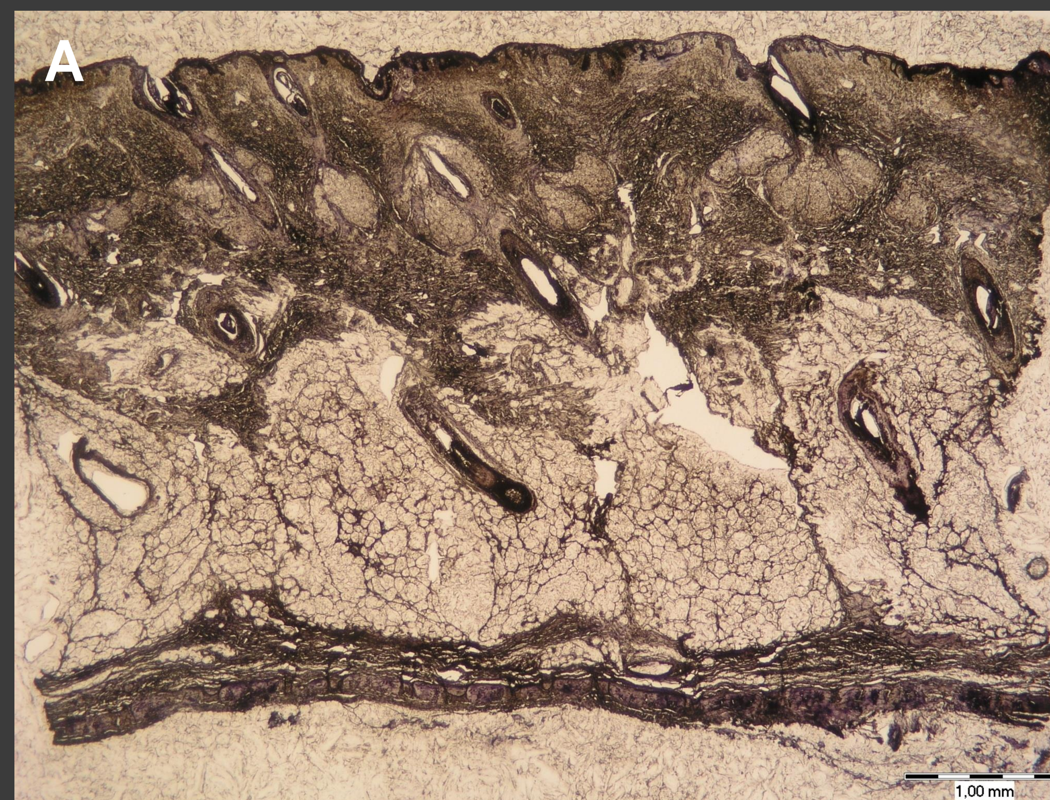
Histological procedures can be a complex and lengthy process. Staining of formalin-fixed, paraffin-embedded (FFPE) sections requires a lot of intermediate steps in which the consumption of chemicals can be extensive and time-consuming. Furthermore, an already embedded tissue sample may need to be identified, or a quick look at the tissue structure may be required for further planning. In order to avoid the numerous intermediate steps, we developed a quick method for staining of FFPE sections that takes about 10 to 15 minutes overall

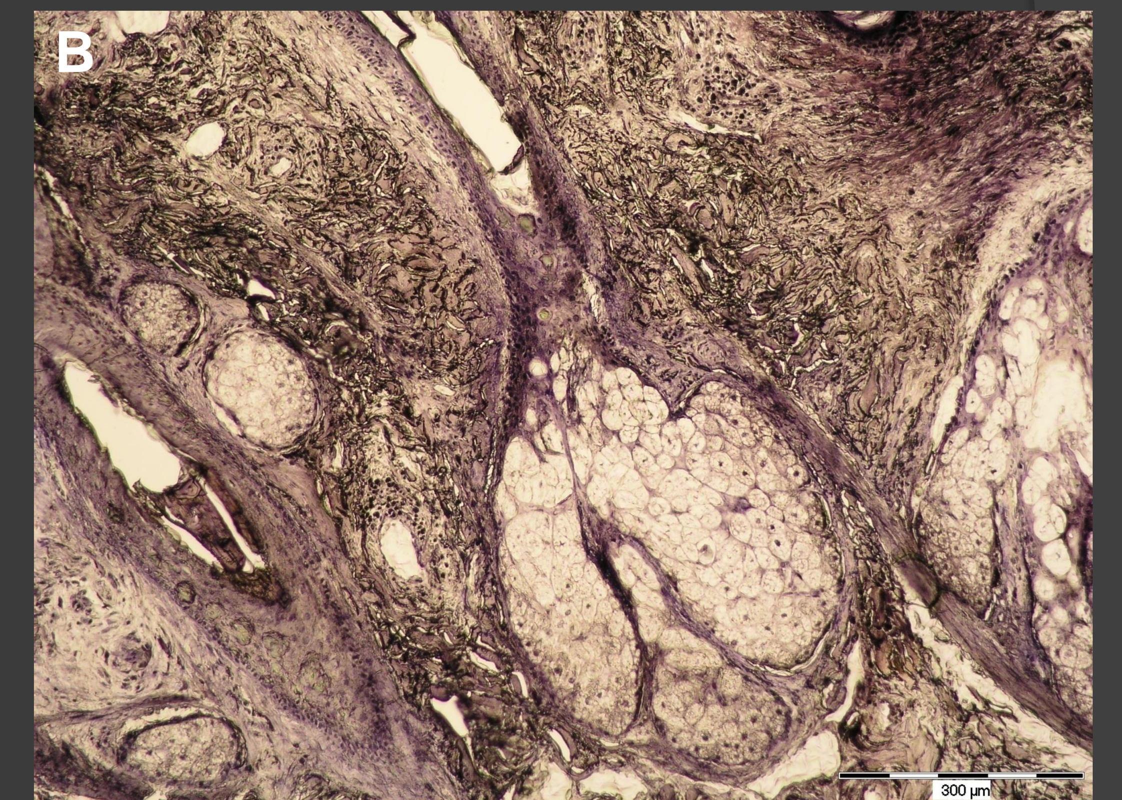
MATERIALS AND METHODS

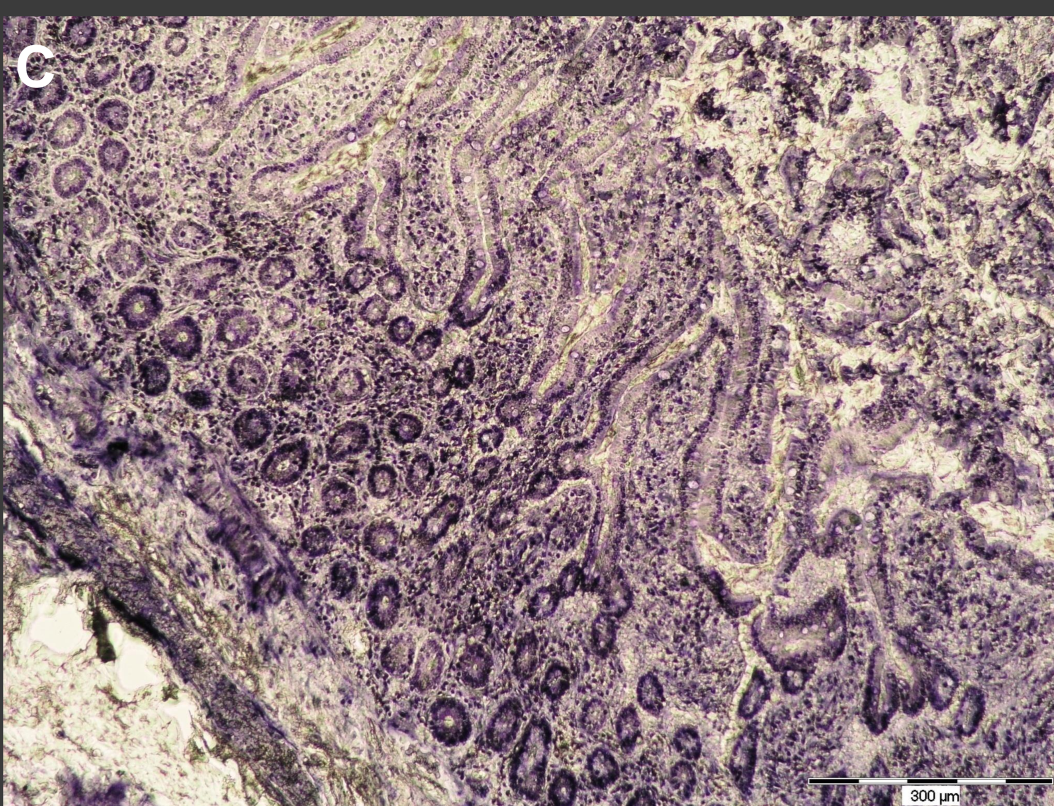
Human liver, skin and small intestine FFPE samples from our department's histological archive were used. 5μm sections were cut, placed on slides and dried for an hour on a thermal plate at 50 °C. Dry slides were left to cool down and 1.5 ml 3% (w/v) haematoxylin in 100% ethanol was added on slides using a micropipette. After 5 minutes, 1 ml of 2.3% iron (III) chloride solution was added to the already present haematoxylin solution. Mixed solution was left on slides for another 5 min, then slides were washed with dH2O. Slides were then immersed in same iron chloride solution to remove excess stain and rinsed with dH2O. The slides were examined and photographed within an hour after the staining was completed; no cover slip was placed on the tissue.

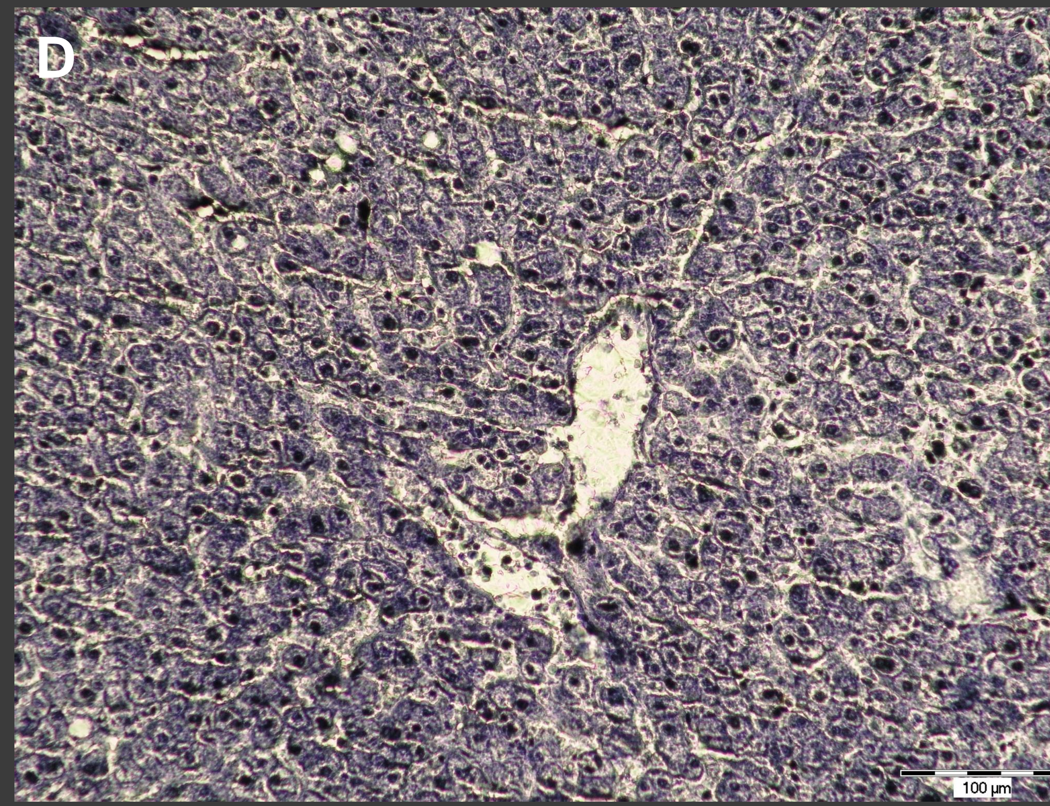
RESULTS

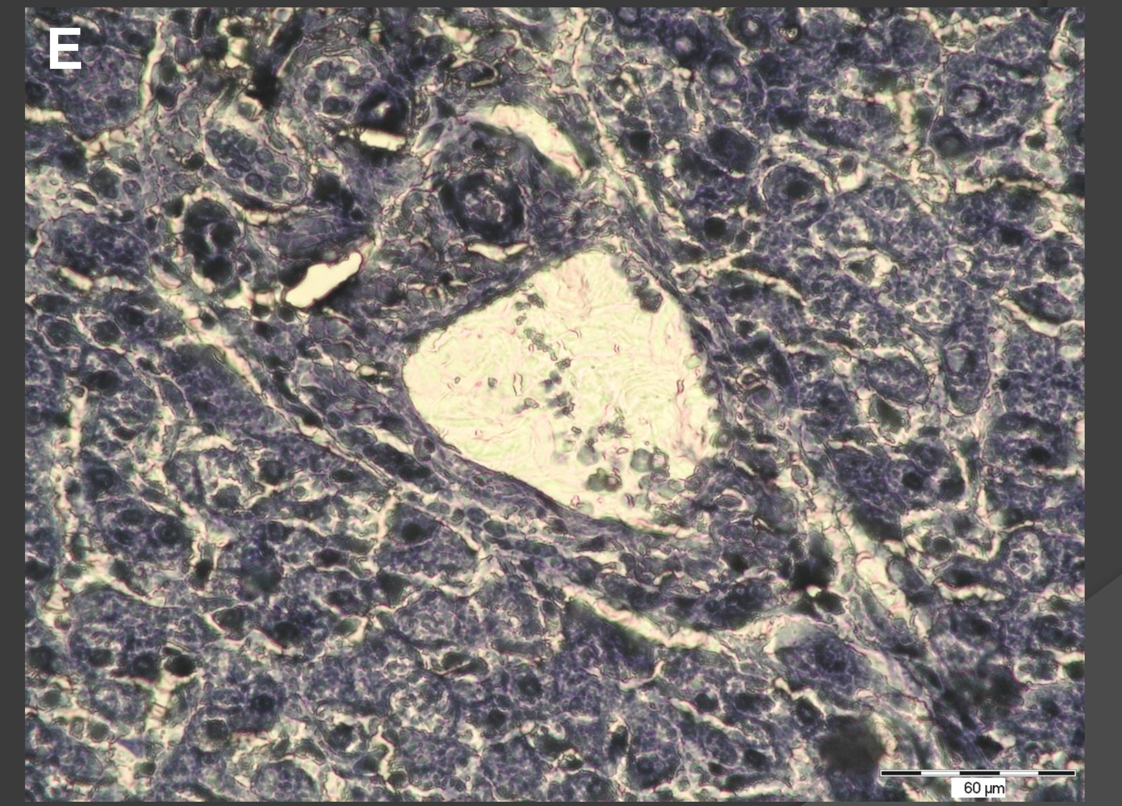
Blue nuances of haematoxylin were predominant, and paraffin crystals were visible. Characteristic details could be identified in all three examined tissues (e.g. central veins, hepatocytes, portal triads; epidermis, hair follicles, sebaceous glands; intestinal villi, crypts, goblet cells).











Figures show different tissues stained as per described method A – Skin (Scale bar: 1 mm); B – Sebaceous gland in skin (Scale bar: 300 μm); C – Epithelium of small intestine (Scale bar: 300 μm); D – Sublobular vein in liver (Scale bar: 100 μm); E – Portal triad in liver (Scale bar: 60 μm)

CONCLUSION

Described method can be useful for quick identification or screening of FFPE samples. Although the paraffin crystals distorted the image to an extent, the tissues could be easily identified, with characteristic tissue details visible enough for quick analysis. Despite the fact that described method isn't a replacement for H&E staining, it's quite faster and uses less chemicals which gives it an edge in situations where speed and tissue identification is needed.

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