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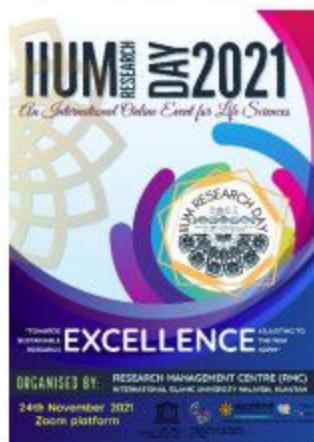


IIUM
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eISSN: 2735-0584

DOI: 10.31436/ijohs.v3iSupplement 1

IIUM Journal of Orofacial and Health Sciences 2022, Volume 3, Supplement 1, DOI:
10.31436/ijohs.v3iSupplement 1



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ABSTRACT ID: 168

THE EFFECT OF PROLONGED FIXATION TIME ON HAEMATOXYLIN & EOSIN STAINING QUALITY OF RATS COLON AND PLACENTA TISSUE

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ABSTRACT

The use of formalin in histopathological sample preparation is intended to preserve protein and cellular organelles. It is argued that prolonged formalin fixation may lead to tissue shrinkage and hardening. Reports on immunohistochemical studies showed that this does not cause reduction in antigen detection. However, it is not known if prolonged formalin fixation can affect hematoxylin and eosin (H&E) staining quality. Our aim is to evaluate the effect of formalin in two different fixation times towards the quality of H&E staining adequacy in paraffin-embedded tissue blocks. Samples from Sprague-Dawley female rats, which include colon and placenta tissues, were harvested and processed to form formalin-fixed paraffin-embedded blocks. They were assessed in two durations: standard duration (SD) fixation up to 72 hours and prolonged duration (PD) up to 7 months in 10% neutral-buffered formalin (NBF). Thirty tissue sections from each study group were stained in modified Gill's haematoxylin, and counter-stained in eosin before coverslipped with DPX. The slides were viewed with light microscope (Olympus BX51, Japan). We found that the staining quality was better among SD of placenta tissue as evidenced by basophilic appearance of basal spongiotrophoblast, and eosinophilic labyrinthine trophoblast. There was not much difference in terms of staining quality for colon, only that more artifacts can be observed among PD histological sections. In conclusion, prolonged fixation of colon and placental tissues in 10% NBF caused low-quality H&E staining. This could be attributed to diminished cellular organization and protein structure. The difference between solid tissue and hollow organ sample also may contribute to the result. As much as we need to optimize sustainable resources, it should not compromise the quality of the outcome. We recommend preserving histopathological samples by adhering to the standard 72 hours duration of formalin-fixation and archiving samples as paraffin-embedded tissue blocks for future studies.

Keywords: prolonged formalin fixed tissues, H&E, tissue processing

Acknowledgement:

Special thanks to medical laboratory technicians from Anatomy and Pharmaco-physiology unit, Department of Basic Medical Sciences, Kulliyah of Medicine, IUM; particularly to Br Mohd Maizam Maideen, Br Muhammad Faiz Miskam, Br Zulnizam Azdnan, Br Mohd Qusyairi Azli Mohd Azharr and Sr. Hanizah Noor Awalludin for their involvement.

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Presenter: **Hazulin Mohd Radzuan**



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