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Perbandingan Kualitas Sediaan Jaringan Hati Mencit (*Mus musculus*) Menggunakan Larutan Fiksasi Neutral Buffer Formalin 10% Dengan Madu Pada Pewarnaan Hematoksilin-Eosin

xv + 96 halaman + 17 tabel + 8 gambar + 10 lampiran.

ABSTRAK

Formalin, khususnya Neutral Buffer Formalin (NBF) 10%, merupakan larutan fiksatif yang paling sering digunakan dalam histoteknologi untuk mengawetkan jaringan. Namun, paparan formalin diketahui menimbulkan berbagai risiko kesehatan. Oleh karena itu, diperlukan alternatif fiksatif yang lebih aman, ramah lingkungan, dan tetap mampu mempertahankan kualitas jaringan untuk pemeriksaan histopatologi. Salah satunya madu yang terdiri dari glukosa, fruktosa, asam glukonat, mineral, vitamin, dan enzim seperti glukosa oksidase yang menghasilkan hidrogen peroksida. Senyawa-senyawa tersebut diyakini mampu berperan dalam proses fiksasi jaringan, mirip dengan kerja formalin. Penelitian ini merupakan eksperimen dengan desain cross sectional yang dilakukan di Laboratorium Balai Veteriner Bandar Lampung pada Juni–Juli 2025. Sampel berupa jaringan hati mencit jantan (*Mus musculus*) yang difiksasi menggunakan NBF 10% sebagai kontrol serta madu dengan konsentrasi 10%, 15%, dan 20% sebagai perlakuan. Preparat jaringan diproses melalui metode histoteknik standar dan diwarnai dengan Hematoksilin-Eosin. Penilaian kualitas pewarnaan meliputi kejelasan inti sel, sitoplasma, intensitas, dan kontras pewarnaan dengan metode observasi skoring. Data dianalisis menggunakan uji statistik *Kruskal Wallis Test* dengan taraf signifikansi 0,02. Hasil pewarnaan dinilai dengan pemberian skor 4-6 (tidak baik) dan 7-8 (baik) sampel yang digunakan sebanyak 24 sampel. Hasil pewarnaan dengan menggunakan NBF 10% sebagai kontrol dengan nilai rerata 8. Hasil penilaian menggunakan Madu 10% dengan rerata 7,1 dari skor maksimum 8. Madu konsentrasi 15% dengan rerata skor 7,8 dan madu konsentrasi 20% dengan rerata skor 8. Kesimpulan dari penelitian ini adalah madu, khususnya pada konsentrasi 15% dan 20%, berpotensi besar digunakan sebagai alternatif larutan fiksatif pengganti formalin dalam pembuatan sediaan histologi hati mencit.

Kata Kunci : Neutral Buffer Formalin, madu, fiksasi jaringan, , Hematoksilin-Eosin
Daftar Bacaan : 36 (2008-2025)

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Comparison of the Quality of Mice (*Mus musculus*) Liver Tissue Preparations Using 10% Neutral Buffered Formalin with Honey Fixation Solutions for Hematoxylin-Eosin Staining

xv + 96 pages + 17 tables + 8 figures + 10 appendices

ABSTRACT

Formalin, particularly Neutral Buffer Formalin (NBF) 10%, is the most commonly used fixative solution in histotechnology for preserving tissue. However, exposure to formalin is known to pose various health risks. Therefore, safer, environmentally friendly alternatives to fixatives are needed that are still capable of maintaining tissue quality for histopathological examination. One such alternative is honey, which consists of glucose, fructose, gluconic acid, minerals, vitamins, and enzymes such as glucose oxidase, which produces hydrogen peroxide. These compounds are believed to play a role in the tissue fixation process, similar to formalin. This study was a cross-sectional experiment conducted at the Bandar Lampung Veterinary Laboratory in June–July 2025. The samples were male mouse (*Mus musculus*) liver tissues fixed using 10% NBF as a control and honey at concentrations of 10%, 15%, and 20% as treatments. The tissue preparations were processed using standard histotechnical methods and stained with Hematoxylin-Eosin. The staining quality assessment included the clarity of the cell nucleus, cytoplasm, intensity, and contrast of the staining using the observation scoring method. The data were analyzed using the Kruskal Wallis Test with a significance level of 0.02. The staining results were assessed by giving scores of 4-6 (poor) and 7-8 (good) to the 24 samples used. The staining results using NBF 10% as a control had an average value of 8. The assessment results using 10% honey had an average of 7.1 out of a maximum score of 8. Honey with a concentration of 15% had an average score of 7.8, and honey with a concentration of 20% had an average score of 8. The conclusion of this study is that honey, particularly at concentrations of 15% and 20%, has great potential to be used as an alternative fixative solution to formalin in the preparation of mouse liver histology specimens.

Keywords : Neutral Buffer Formalin, honey, tissue fixation, hematoxylin-eosin
Reading List : 36 (2008-2025)