STAINING ASSESSEMENT OF BUCCAL CELLS USING AQUOEUS EXTRACT OF FRUITS SKIN

By

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Thesis Submitted in Partial Fulfilment of the Requirements for

Bachelor of Medical Laboratory Technology (Hons),

Faculty of Health Sciences, University Tecnologi MARA

2017

DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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2013287886

ACKNOWLEDGEMENT

I would like to express my humble thanks to ALLAH S.W.T for the strength, inspiration and encouragement given to me throughout the completion of this thesis without any obstacles. A lot of experiences and knowledge were gained along the way. I would like to thank to my supervisor, Mr. Mohd Nazri Abu for his support, guidance and encouragement during completion this thesis.

I wished to express my thanks to my teammate for their support, guidance and friendship. Not forgotten thank to all labs staffs of Medical Laboratory Technology Department, friends, family and everyone who involved directly or indirectly towards the completion of this project.

Thank you

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ABSTRACT

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Background: In cytology, stains are dyes that have been importantly used for better description of morphological cells appearance under microscope. The conventional dyes are derived from synthetic dye, which it very efficient for staining purpose but their applications are limited because they are hazardous to human and animal health. Therefore, the new natural dyes were developed to obtain eco-friendly, non-toxic and inexpensive dye for cytological stain.
Objective: The objective of this study was to assess the staining ability of dyes extract from fruits skin on the buccal cell smear and to compare its staining intensity with that routinely used Papanicolaou dye.
Method: Washed fruits skins were cut into small pieces and was dried by oven at 40˚C. These dried plant materials were grounded to form fine powder which was then processed to form dyes. The smears were stained using fruits skin dyes extract with/without aluminium chloride ($AlCl_3$) as mordant using the existing regressive staining procedures with little modification. The intensity of the stain was recorded and the data was analysis by using Weighted Kappa test.
Result: The result shows that natural dye from *Prunus domestica* (European plum) extract could be stain the nucleus with reddish color even though the staining intensity is cannot be compared with Papanicolaou stain. While other dyes extract *Allium cepa Linn* var. Rouge Amposta (red onion), *Allium cepa Linn* var. zittauer(yellow onion), *Hylocereus polyrhizus* (red pitaya) and *Punica granatum* (pomegranate) have the ability to stain cytoplasm. Statistical analysis reveals $p<0.001$ were it is shows that all of the dyes extract have ability to stain the buccal cells smear. The level of the stains was not significantly different among mordant and without mordant conditions.
Conclusion: This finding suggests that with little modification and improvement, dyes extract from fruits skin could be used as an alternative dye for cytological staining.

Keywords: Alternative, Cytological staining, Fruits skin, Natural dye, *Prunus domestica*