



**AQUEOUS EXTRACTS OF NATURAL DYES ORIGINATED FROM  
SELECTED FLOWER PETALS AS ALTERNATIVE TO CYTOLOGICAL  
STAIN ON BUCCAL SMEAR**

**By**

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## **DECLARATION**

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

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## ABSTRACT

### AQUEOUS EXTRACTION OF NATURAL DYES ORIGINATED FROM SELECTED FLOWER PETALS AS ALTERNATIVE TO CYTOLOGICAL DYES ON BUCCAL SMEAR

**Background:** Few years back, high demands and limited supplies of hematoxylin dyes cause the price of the dyes increase and pose an apparent risk to rainforest ecology of producing country. Alternative to hematoxylin dyes determined to overcome the issue.

**Objective:** determination of ability of aqueous extract of natural dye that derived from flower as a cytological dye for cell screening.

**Method:** Fresh flower petals were desiccated, oven-dried, and undergone aqueous extraction to extract natural dyes. The natural dyes extracts were used in Pap Stain procedure by replacing the Hematoxylin dyes in staining buccal smear. The quality of the stain rated by 10 people and Weighted Kappa test was done using Statistical Package for the Social Sciences (SPSS) statistical analysis software.

**Results:** The kappa values of *Bougainvillea spectabilis* extract with presence of mordant, *Dianthus caryophyllus* extract with presence of mordant, *Hibiscus sabdariffa* extract with presence of mordant, *Costus woodsonii* extract with and without presence of mordant are 0.442, 0.438, 0.538, 0.462 and 0.558 respectively, showed moderate strength of agreement. While *Hibiscus sabdariffa* extract without presence of mordant, *Dianthus caryophyllus* extract without presence of mordant and *Rosa spp.* extract with presence of mordant resulted 0.288, 0.243, 0.375, and 0.231 respectively showed fair strength in agreement. Lastly, *Rosa spp.* extract without presence of mordant showed poor strength in agreement as it's the kappa value is 0.000.

**Conclusion:** All the aqueous extracts have the ability to stain nucleus. However, those extracts are incomparable to Pap Stain.

**Keywords:** Cytology, Stain, Hematoxylin, Mordant, Pap stain, Aqueous extract, Flower, Alternative