UNIVERISITI TEKNOLOGI MARA

ASSESSMENT OF ANTIMITOTIC ACTIVITY OF *Mangifera caesia* (BINJAI) FRUIT EXTRACT USING *Allium cepa* TEST

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the degree of
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DECLARATION

I declare that this thesis entitled "ASSESSMENT ON ANTIMITOTIC ACTIVITY OF *MANGIFERA CAESIA* FRUIT EXTRACT" is the result of my own research to the best of my knowledge, original, except for quotations and summaries which have been dully acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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In the name of Allah, The Most Gracious and Merciful

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ABSTRACT

Mangifera caesia also known as binjai, is one of the medicinal plant that used by people of Sabah particularly in Papar and Kota Belud districts to increase appetite, treating cold, body itchiness, high blood pressure, and bronchitis. There has been no report regarding the antimitotic potential of the plant. The aim of this study is to assess the *M. caesia* of its mitodepressive effect against dividing cell. *Allium cepa* root was tested against the aqueous and methanol extract of binjai for 24 hours. The root of *Allium cepa* were treated with different concentration (4-6 mg/mL) of *M. caesia* aqueous fruit extract (MCAE) and *M. caesia* methanol fruit extract (MCME), distilled water was used as negative control and sodium azide (0.1 mg/mL) was used as positive control. The cells then crushed and stain with 0.5% methylene blue and observed microscopically to calculate the mean percentage of the Mitotic Index (MI). MCAE with concentration of 6 mg/mL was found to significantly ($p=0.013$) reduced the MI of Allium cepa compared to the negative control (distilled water). Similarly, MCAE at 5 mg/mL was also found to have significant ($p=0.048$) reduction of MI. In comparison, only MCME with concentration of 6 mg/mL found to significantly ($p=0.009$) reduced the MI of *Allium cepa*. Increase MI reduction with the increase of extract concentration suggest a dose dependent effect. The result indicate cytotoxic potential of both MCAE and MCME due to the significant mitodepressive effect. In conclusion, both MCAE and MCME exhibits antimitotic activity against *Allium cepa*. The study give credence to medicinal potential of this plant and need to conduct further sophisticated test to determine the anticipated anticancer potential.