



## Cytotoxicity assessment of Ceri Terengganu and Kuini extracts against cancer cell lines

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### Introduction

Nowadays, food and natural ingredients have been connected to specific health benefits, from prevention of particular cancers to reduction of blood cholesterol and new branded food products with explicit health claims have also been introduced in the market. Ceri Terengganu (*Lepisanthes fruticosa*) and Kuini (*Mangifera odorata*) are some of the indigenous fruits available in Malaysia, known as *Buah Nadir*. Though these fruits are known to be a non-seasonal fruit species which produce fruits throughout the year, yet they are still underutilised. Preliminary studies showed that these fruits have gained attention due to its high antioxidant value. The objective of the study is to access the potential of these fruits extract on cell lines.

### Methodology

#### 1. Sample Preparation by Methanol Extraction

- Ceri Terengganu Flesh (immature)
- Ceri Terengganu Seed
- Kuini Kernel
- Ceri Terengganu Flesh (matured)

#### 2. Cell Culture

- Normal Cell Lines (MRC5, VERO & 3T3)
- Cancer Cell Lines (MCF-7, HeLa, HT-29, HepG2, A549 & CRL1739)

#### 3. Cytotoxicity by MTT Assay

- Cell at  $2 \times 10^3$  cells/ml was plated (100  $\mu$ l/well) onto 96-well plates
- sample extracts were added at concentrations; 500, 100, 50, 25, 12.5, 6.25, 3.13 and 1.56  $\mu$ g/ml and incubated for 24h
- IC<sub>50</sub> value were recorded

### Result & Discussion

Results evaluated from these four extracts revealed that these extract does not inhibit the growth of normal cell line, but affecting the growth of selected cancer cell lines. Extract of kuini kernel demonstrated a promising result on HepG2, MCF-7 and CRL1739 cell lines, where the IC<sub>50</sub> are 18.5 $\mu$ g/ml, 22.5 $\mu$ g/ml and 22 $\mu$ g/ml, respectively. Whereas immature ceri terengganu extracts showed cell growth inhibition on HepG2 and MCF-7 cell lines with IC<sub>50</sub> 37.5 $\mu$ g/ml and 27.5 $\mu$ g/ml, respectively. Based on the data, it showed the inhibitory by kuini kernel were active since a really low dose does affected the cell growth.

Sample Name	Results (IC <sub>50</sub> )		
	HepG2	MCF-7	CRL1739
Sample A	37.50 $\mu$ g/ml $\pm$ 10.61	27.5 $\mu$ g/ml $\pm$ 3.54	85.0 $\mu$ g/ml $\pm$ 7.071
Sample B	125.00 $\mu$ g/ml $\pm$ 35.36	150.0 $\mu$ g/ml $\pm$ 28.28	182.5 $\mu$ g/ml $\pm$ 3.536
Sample C	18.50 $\mu$ g/ml $\pm$ 0.71	22.5 $\mu$ g/ml $\pm$ 3.54	22.0 $\mu$ g/ml $\pm$ 2.121
Sample D	125.00 $\mu$ g/ml $\pm$ 35.36	85.0 $\mu$ g/ml $\pm$ 14.14	172.5 $\mu$ g/ml $\pm$ 10.61

### Conclusion

From this cytotoxicity assessment, it was proven that some part of these fruit have a potential anticancer activities against selected cancer cell lines. Exploring the molecular mechanism underlying the *in vitro* anticancer effects of these extracts on cancer cell lines would be an interesting adventure as we are currently moving towards the discovery and development of neutraceuticals and functional foods era.