CYTOTOXICITY EVALUATION OF *Urena Lobata* LEAF EXTRACT AND THEIR FRACTION ON RAW 264.7 CELLS USING TETRAZOLIUM (MTT)

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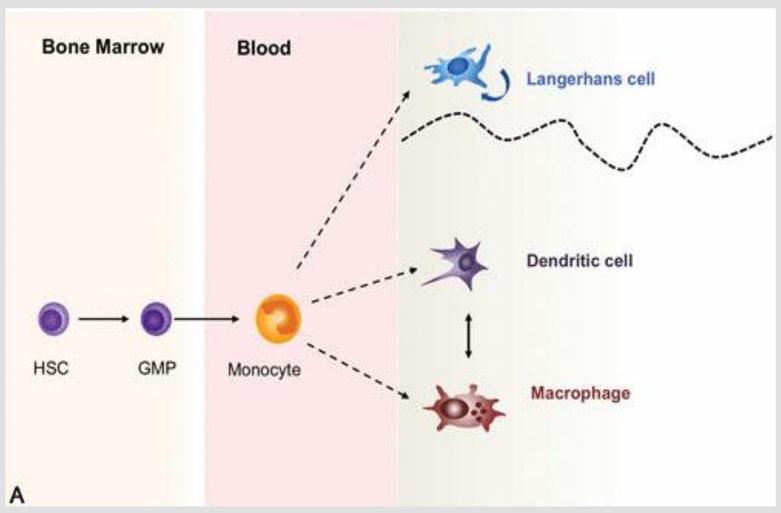
Background

- Pulutan (*Urena lobata*) is herbal medicine that used to treat some diseases related to infection and inflammation condition.
- Both extract and fraction of *Urena lobata (U.lobata)* indicated activity such as analgesic, anti-diabetic and anti-inflammation, moreover the toxicity must be considered.
- The study about their safety have not been evaluated and reported completely, therefore, the toxicity study has to be performed.
- RAW 264.7 cells is macrophage that is found on tissue derived from monocyte



Objective

To determine toxicity level of *Urena lobata* (*U.lobata*) leaf extract and their fraction on RAW 264.7 cells using tetrazolium (MTT) assay

Materials & Methods

- *U. lobata* leaf was extracted by digestion methods using ethanol solvent, therefore, the extract was fractionated by n-hexane (fraction A), ethyl acetate (fraction B), n-buthanol (fraction C) and water (fraction D) respectively.
- Extract and fractions are tested on RAW 264.7 cells, furthermore percentage viability values of the cells determined by the tetrazolium salt reduction assay (MTT).
- The half-maximal inhibitory concentrations (IC_{50}) of viability cells were determined (n=3) for at least four different concentrations.

Materials & Methods Cont'd

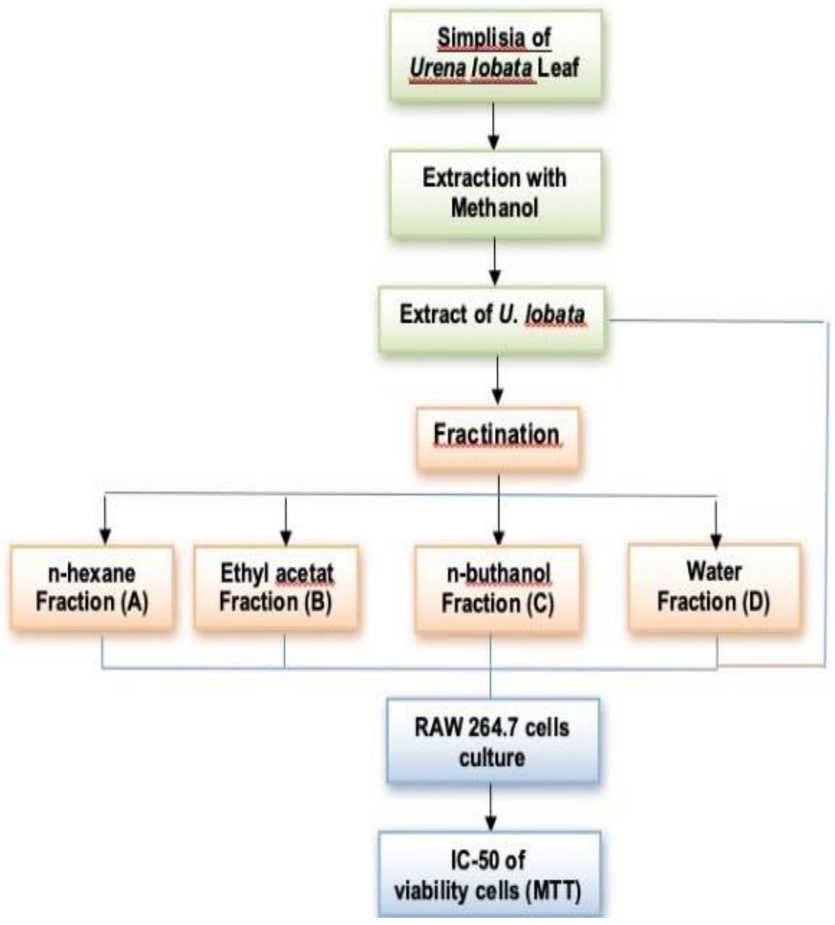


Figure 1. Extraction and Fractionation of *U.lobata* leaves including toxicity test using MTT on RAW 264.7 cells culture

Results

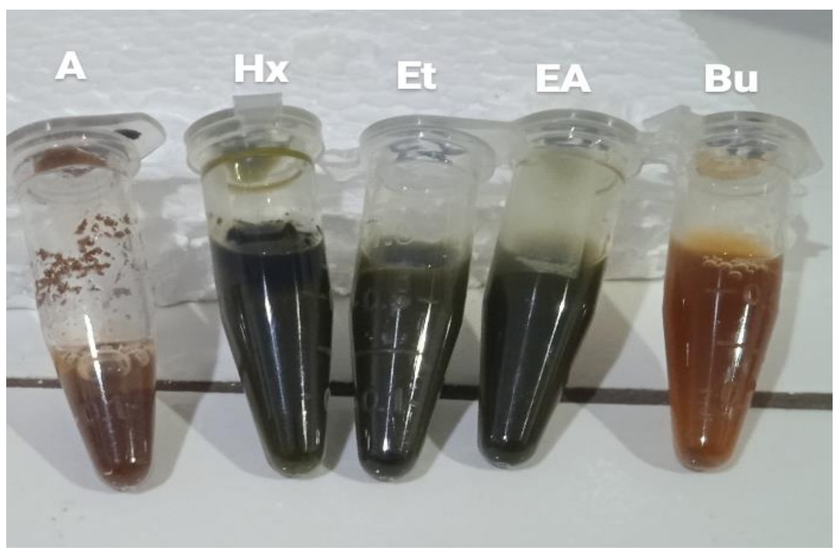


Figure 2. Extract and fraction of *U.lobata* leaves, (A= water fraction, Hx= n-hexane fraction, Et = ethanolic extract, EA, Ethyl acetate fraction, Bu = n-butanol fraction)

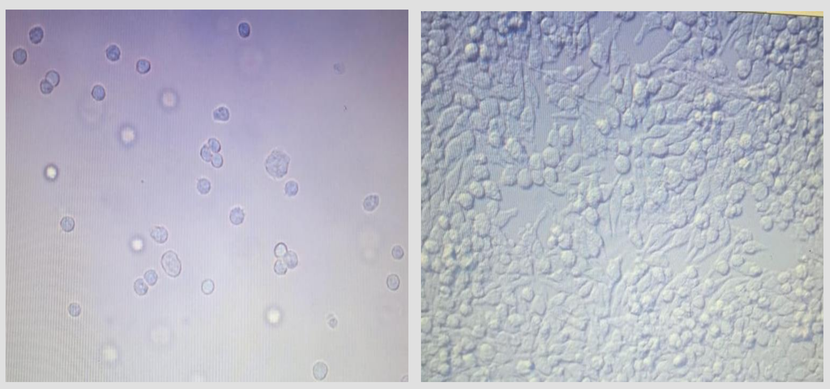


Figure 3. RAW 264.7 cells culture, first day before treatment (left) and third day before treatment (right)

Table 1. Histogram of Globulin Levels in Diabetic Rats Treated with *G.Max, Z.Officinale* Extracts and their Combinations

Sample	n	IC-50 (ppm)
Extract *U. lobata*	3	7515,63
Fraction A	3	2941,73
Fraction B	3	3967,76
Fraction C	3	12473,33
Fraction D	3	19048,46

Discussion

- Fraction A showed inhibition on viability cells (IC_{50} = 2941,73 ppm) stronger than fraction B (IC_{50} = 3967,76 ppm), fraction C (IC_{50} = 12473,33 ppm) and fraction D (IC_{50} = 19048,46 ppm).
- Meanwhile ethanolic extract (IC_{50} = 7515,63 ppm) lower than fraction A and fraction B but stronger than fraction C and D to inhibit viability cells.
- Alkaloid group such as mangiferin and phytosterol group like stigmasterol and β-sitosterol are predicted as toxic substances in *U. lobata* leaf extract.
- Interaction between active compound in herbs could modulate their activity and it affect its toxicity

Conclusion

Fraction A of *U.lobata* has toxicity level strongest among fraction B, C, D and its extract.

Conflict of Interest

The authors have no Conflict of Interest with regard to the presentation.

References

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