DEVELOPMENTAL TOXICITY STUDY OF *LABISIA PUMILA* VAR. *ALATA* IN RODENT WHOLE EMBRYO CULTURE

Elda Nurafnie Ibnu Rasid, Mohd Rahimi Ashraf bin Abd Rahman, Wan Mohamad Adham Afiq bin Wan Zainuzzaman, Qurratul Ain Suami Abdullah, Norizah Awang, Hussin Muhammad

Toxicology and Pharmacology Unit, Herbal Medicine Research Centre, Institute for Medical Research, National Institute of Health, Setia Alam, 40170, Shah Alam, Selangor, Malaysia

Ministry of Health Malaysia

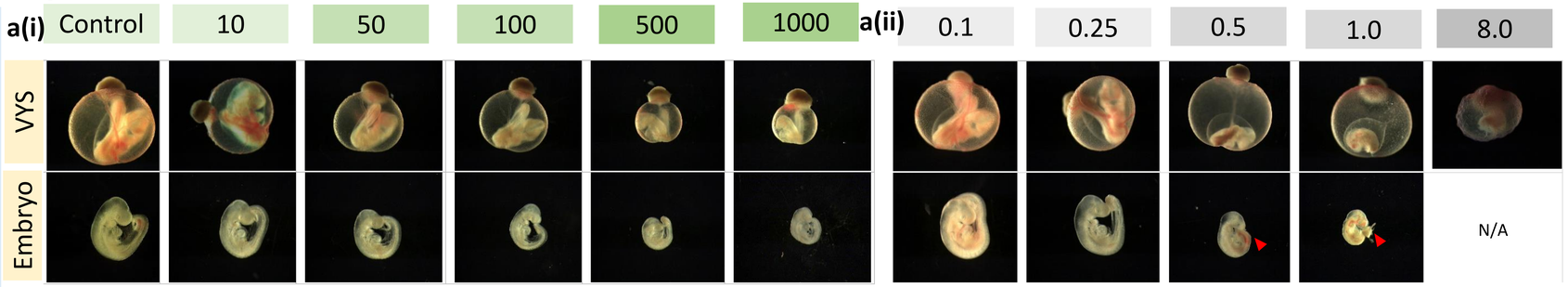
INTRODUCTION

Labisia pumila var. *alata* (LPva) is traditionally used to facilitate childbirth and post partum medication. Although there are many studies on LPva, evidence on its toxicity and adverse effect during pregnancy are still limited. Developmental toxicity assessment is time-consuming and animal-demanding. Therefore alternative model is feasible to be incorporated and adapted. The aim of this study is to investigate developmental toxicity of LPva extracts using rat post-implantation Whole Embryo Culture (WEC) system.

- Reproductive toxicity models
- 3Rs (reduction, refinement, and replacement)
- A considerable number of animals used could be spared

METHODOLOGY

RESULTS & DISCUSSION



LPva affected development of E11.5 embryo at 500µg/ml and 1000µg/ml ($p<0.001$). Total morphology score (TMS) were decreased in a dose dependent manner with CRL and HL reduced correspondingly. No abnormality recorded.

In comparison with 5FU, abnormality was evident in the limb-bud and head development (Figure a(ii)) with TMS, CRL and HL were significantly decreased at 0.5 µg/ml and 1.0 µg/ml ($P<0.001$). Embryo death was observed at 8.0 µg/ml.

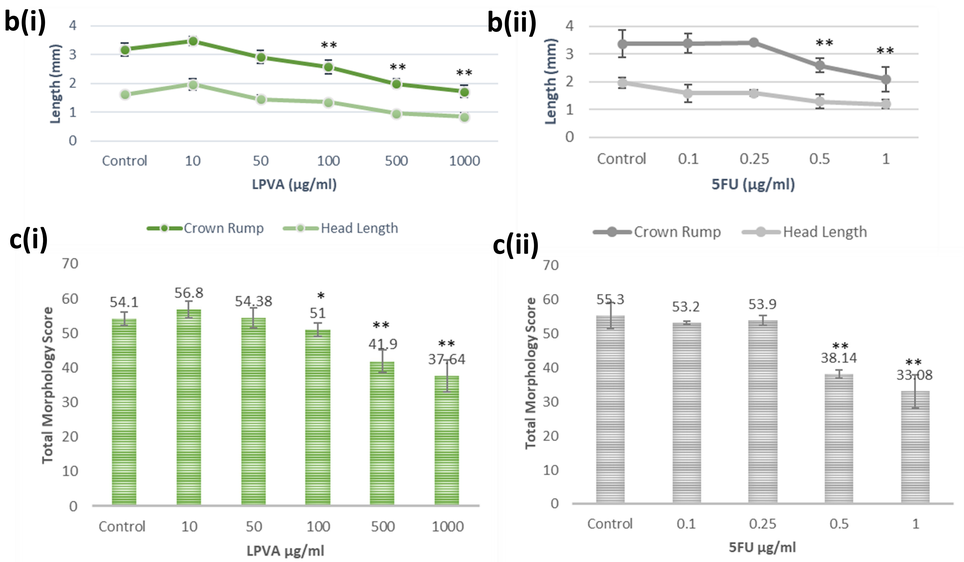


Figure a) Representative pictures of rat WEC exposed to (i) LPva and (ii) 5FU at various concentrations (µg/ml) for 24 hours. The morphology of embryos exposed at the lowest concentrations were identical with those in control group. b) Effect of (i) LPva and (ii) 5FU on embryos head and crown rump length c) Total morphology score of embryos treated with (i) LPva, and (ii) 5FU. Each represents mean ± SD (n=5, t-test: *p<0.05 **p<0.01).

CONCLUSION AND RECOMMENDATIONS

Findings suggested that the LPva may have an effect towards embryo growth and development during early organogenesis period at higher dose but do not cause abnormality. Further study using transcriptomic approach may increase predictivity of detecting developmental toxicity in WEC.

ACKNOWLEDGEMENT

The authors would like to thank the Director General of Health Malaysia for his permission to publish these findings.