TERATOGENIC AND TOXICITY EFFECTS OF DICHLOROMETHANE-METHANOL EXTRACTS OF *Toddalia asiatica (L) Lam* AND *Acacia polyacantha* PLANTS FROM SUBUKIA, NAKURU COUNTY, KENYA

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DECLARATION

This thesis is my original work and has not been handed out for a degree in any other University or any other award.

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ABSTRACT

Teratogens are agents found in the environment, when exposed to developing fetus will result to birth defects. In Kenya various plant extracts are widely used as folklore remedies for various ailments including malaria etc. However, use of these traditional remedies poses a risk to the users due to the scarcity of data on their safety including their teratogenic potential. Hence this study evaluated the teratogenic and subacute toxic effects of methanol: dichloromethane extract of *Toddalia asiatica* and *Acacia polyacantha* in animal mice. Extracted materials were reconstituted in (10% DMSO). Young female mice aged between 6-7weeks were mated with mature males and conception confirmed using vaginal plug, maternal weight and breast enlargement. Administration of the dosed of the plant extract and controls was done from day 6 through 15 of gestation. The mice were euthanized on the 19th day of gestation. The weight of the gravid uterus, pups, number of pups and gross examination to identify any physical abnormalities was done. In the toxicity study male mice aged between 6-7 weeks received oral administration of high doses of plant extract and the control daily for 28days. On the 29th day animals were sacrificed, cardiac puncture conducted and collected blood for hematology and biochemistry analysis. The mice were fed with standard rodent pellets' *ad libitum*. Sub-acute toxicity was conducted following OECD 407 guidelines. Vital organs were collected for histological analysis. The data obtained was analyzed using one way ANOVA followed by Tukey as the post hoc test. Statistical significance was set $p < 0.05$. The extracts of *T. asiatica* caused significant reduction ($p<0.001$) in head size, birth weights and length of the limbs but no effects on hematology parameters. Extracts of *T. asiatica* showed the presence of flavonoids, tannins, alkaloids, terpinoids, coumarin and cardiac glycosides. Extracts of *A. polyacantha* indicated the presence of cardiac glycosides, alkaloids, flavonoids tannins, terpinoids and saponin but not coumarins. Extracts of *T. asiatica* exhibited teratogenic effects and thus should be used with care during pregnancy. Further investigations should be carried out to evaluate mechanisms of action of the phytochemicals causing observed teratogenic effects.